
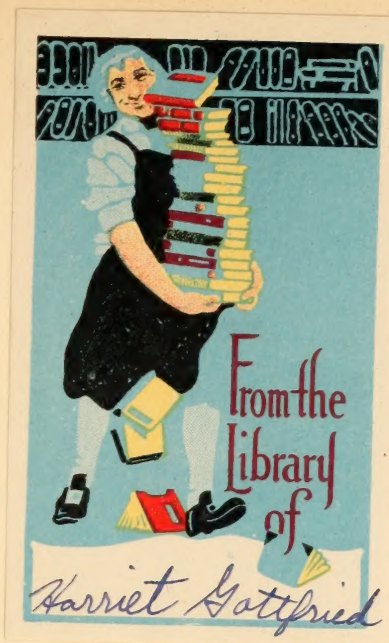


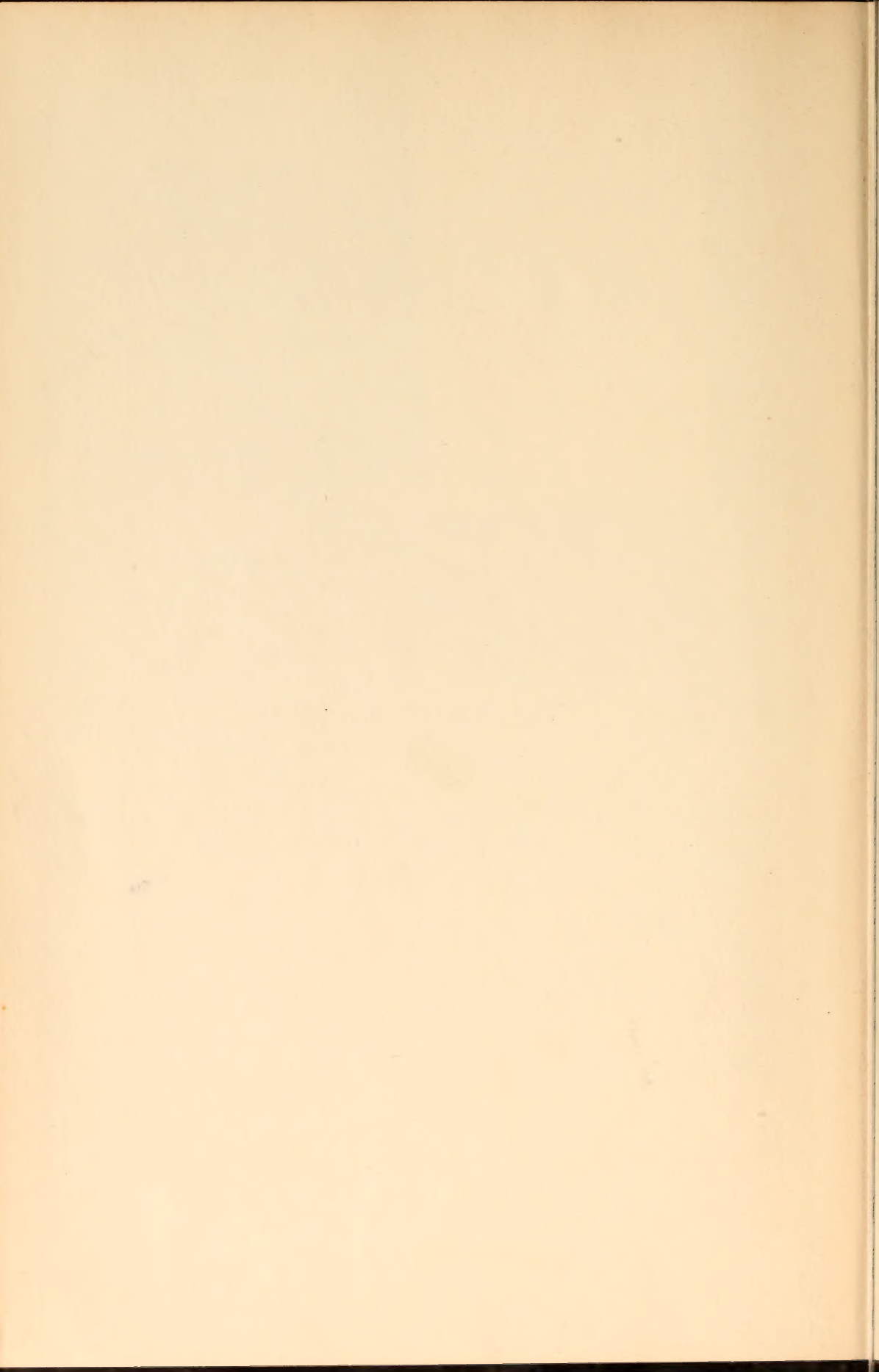
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The
BOOK *of* KNOWLEDGE

The Children's Encyclopedia

EDITORS-IN-CHIEF

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WITH AN INTRODUCTION BY

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GENERAL INDEX

Edited by Zaidee Brown
Librarian and Lecturer in Library Schools

KEY TO ILLUSTRATIONS OF THE FINE ARTS

Painting, Sculpture and Architecture

GRADED COURSES OF STUDY

With an Introduction by
Angelo Patri

SCHOOL-SUBJECT GUIDE

A Complete Analysis of the Work

VOLUME XX

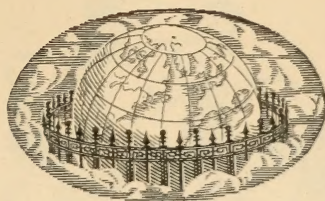
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CONTENTS OF THIS VOLUME

The Index Volume of The Book of Knowledge is a short cut to the rapid use of the set of books. It contains a General Index and a Poetry Index, with full explanation of their use; a School-Subject Guide which analyzes the contents of the nineteen volumes for convenient use in school work; Graded Courses of Study with inspiring talks to the Children, the Parents and Teachers, by Angelo Patri; two important historical documents, the Declaration of Independence and the Constitution of the United States, to which every student of American history must frequently refer; also useful tables of weights and measures, and easy rules of reckoning in rapid calculations.

	PAGE
How to Use the General Index	7249
General Index	7251
How to Use the Poetry Index	7529
Poetry Index	7531
Historical Note on the Declaration of Independence	7553
Text of the Declaration of Independence	7554
Historical Note on the Constitution	7558
Text of the Constitution	7563
Analysis of School-Subject Guide	7581
School-Subject Guide	7583
Introductions to Graded Courses of Study	7727
Contents of Graded Courses of Study	7734
Graded Courses of Study	7735
Weights and Measures	7858
The Quickest Way to Find Things	7860
Key to Illustrations of the Fine Arts	7863



CONTENTS OF THE VOLUME

The volume contains a collection of papers and documents, many of which are of great historical interest. The papers are arranged in chronological order, and the volume is divided into two main parts. The first part contains the original documents, and the second part contains the correspondence and other papers relating to the same period. The volume is a valuable addition to the collection, and it is hoped that it will be of great service to the public.

The volume is bound in a fine, dark leather, and is in excellent condition.

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DIRECTIONS FOR USING THE INDEX

WITH this index, you can quickly find the information on any subject that is in *The Book of Knowledge*. The subjects are arranged alphabetically, like the words in a dictionary, and are printed in black type. The parts of each subject are printed below it, in ordinary type, and indented or set to the right a little. Usually these topics under the main subject are arranged alphabetically, but in some cases the most important articles are placed first. Often parts of these main articles are also indexed below under their topics.

Whenever there is a line of entries indented, or moved to the right, it is understood that they all belong under the entry above. For instance, under the word *Agriculture* are several entries set a little to the right, including the entry *Regions*. Set to the right under this are names of regions. One of these is the entry *England*. Under this are several entries, still more to the right. This means that they are all about England only. Under *France* you will find main subdivisions, such as *description*, *history*, etc.; and under each of the main divisions you will find its subdivisions. Look under *France* and see if you understand the arrangement.

When you want to find a subject, look under its exact name, not under the large group to which it belongs. For instance, if you want to find *Violets*, look under that word, not under *Flowers*. Under *Flowers* are general articles about several kinds. For material on any person, look under his name; for places or countries, look under their names.

The figures after the entries tell the volume and page where you will find material. The volume number is printed in blacker type. If there is material on several pages in a volume, they are all given. If the article extends over more than one page, the first page is given, and the last one, in shortened form. For instance, 13-4570-73 means vol. 13, pages 4570 to 4573. If more than one page is given, with a comma between, it means to look on each page, but not on the ones between. For instance, 13-4570, 4573, 4579 would mean to look on those three pages only.

In arranging entries, all the entries beginning with one word are put together, before any of a longer word that begins with the same letters. For instance, all the entries beginning with *In* come before all those beginning with *Into*; all those beginning with *The* come before those beginning with *There*. In the

arrangement of entries, a word with a hyphen is treated as if it were two words. For instance, *Sea-gull* is arranged as if it were *Sea gull*, and it goes with the entries beginning with *Sea*.

Sometimes there are two words for a subject or a person, and we have put all the index entries under one of them. In that case, we put an entry under the other word, telling where the material is. For instance, the author S. L. Clemens called himself, when he wrote, Mark Twain. We have put the entries under his real name, and have said, under Twain, "Twain, Mark, *see* Clemens, S. L." This means, "Look under Clemens." We have done the same for flowers that have several names, and in other cases. Such an entry is called a "see reference," and it means, "Look in the other place."

Sometimes you may not find all you want about a subject in the entries under it, and would like to look further. There may be other subjects that are similar, where you could find what you want. To help you find these, we have sometimes put in an entry which says, "*See also*" and then gives other good places in which to look. This means "Look also under these other subjects, and you may find more information." For instance, under *Antarctic regions*, we have said "*See also* South Pole."

If you want a list of stories, look under the word *Stories*, where you will find a general list, and then special kinds. For fairy tales, look under *Fairy tales*; and for myths, under *Myths and legends*.

Poems about a subject, questions, and pictures illustrating it, are all listed after the other entries. You will find it interesting to read over some of these questions, and if you do not know the answers to look for them. The word (gravure) after a picture means that it is reproduced by the gravure process, which makes an especially good picture. If the picture is in color, that is noted. All pictures are entered under artist as well as under subject.

The most important articles are marked with a star (*).

Remember that the first figure, in black type, gives the volume, and the other figure gives the page.

POETRY INDEX

The Poetry Index, following the General Index, gives authors, titles, and first lines of poems. Directions for using it are given at its beginning. Poems are also entered under their subjects in the main index. For instance, if you wish to find a list of the poems by Tennyson, look in the Poetry Index. If you wish to find the poems about flowers, look under the word *Flowers*, in the main index.

GENERAL INDEX



A. D., abbreviation, meaning of, 11-4131
A. H., abbreviation, meaning of, 11-4131
A. M., abbreviation, meaning of, 11-4131
A. U. C., abbreviation, meaning of, 11-4131
Aachen, *see* Aix-la-Chapelle
Aard-vark, animal, account of, 7-2409
Pictures, 7-2395, 2399
Aard wolves, animals, description, 2-502
Pictures, 2-496
Abaca, plant producing Manila hemp, 11-3792
Abalone, mollusc, description, 19-6892
Abbas I, the Great, shah of Persia, 3-918
Abbey, Edwin A., American painter
 life and work, 10-3450-51
Picture, Vision of the Holy Grail (gravure), 19-6948
Abbeys
Pictures
 Irish ruins, 8-2942
 Rievaulx Abbey, Yorkshire (gravure), 7-2303
 Tewkesbury Abbey (gravure), 16-5975
Abbot, The, by Scott, note on, 11-4970
Abbotsford, Scotland, home of Sir Walter Scott
Picture, 7-2631
Abbott, Jacob, author, 14-5014
Abbott, Sir John, premier of Canada, 4-1491
Abbott, Mary, wife of George Romney, 7-2334
Abbreviations about time, meaning of, 11-4131
Abd-el-Kader, Arab patriot, story of, 4-1255
Abdul Wahhab, Mohammedan reformer, founded Wahhabis, 18-6674
A Becket, Thomas, *see* Thomas à Becket
Abelard, Peter, life of, 13-4864
Aberdeen-Angus, breed of cattle, description, 4-1262
Picture (in color), facing 4-1259
Abolitionists, fight on slavery, 7-2428
Aboukir Bay, Battle of, or, **Battle of the Nile**, 6-2203; 10-3570
Abraham. The first of the patriarchs and the founder of the Hebrew races; equally revered by Jews, Christians and Mohammedans. Buried at Hebron.
 account of, 19-7155
 turned from Babylonian gods, 2-648
Abraham, Plains of, *see* Plains of Abraham
Abruzzo, Prince Luigi Amadeo, Duke of the, arctic explorer, 13-4718
Absalom and Achitophel, satire by Dryden, note on, 4-1358
Absorption. In physiology, the imbibing of gases or fluid by living cells or tissue, as the absorption of oxygen by the blood in the lungs, and the passage of digested food into the blood or lymph for transference to different parts of the body. Absorption in plants generally takes place through the roots and leaf surfaces, though a few plants engulf particles of food and digest them.
 For absorption of light, *see* 17-6079
Abul Hassan, introduced hours of equal length, 11-4132
Abul Kasim Mansur, *see* Firdausi
Abyssinia, Africa, account of, 18-6814
 races in, 9-3047
 visit of James Bruce, 2-466
Acacia. A big family of plants with fragrant flowers belonging to the *Leguminosæ*. They grow in Australia, Polynesia and all tropical and sub-tropical countries except Europe. Some yield

Acacia (continued)

gums; others, timber; some, food products. The astringent bark of the Australian acacia, or wattle, is much used in tanning. The black-wood of Australia and the koa of Hawaii furnish cabinet woods that take a high polish.
Acacia trees, ants in thorns of, 17-6353-54
 false acacia, *see* Locust trees
Académie française, *see* French Academy
Academies
Question about
 How, when and where did academies begin? 16-5741
Academus, legendary Greek hero, 16-5741
Academy of Sculpture and Painting and Architecture, France, 5-1874
Acadia, or Acadie. The old French name of Nova Scotia.
 colony established, 2-679-80
 exile of French inhabitants, 3-782
 struggle for, between French and English, 2-682-83
See also Nova Scotia
Acadia National Park, Maine, 7-2291
Picture, 7-2285
Acanthodians, prehistoric fishes, 4-1176
Pictures, 4-1177
Accidents, *see* First Aid
Accra, capital of Gold Coast, 9-3056
Accumulators, *see* Storage batteries
Acetylene. A colorless gaseous hydrocarbon with an ethereal odor which is usually unpleasant. It burns with a brilliant white light yielding 35-45 candle power per cubic foot, or nearly fifteen times the light of ordinary illuminating gas.
Achates, friend of Æneas, 6-1987
Acheron, account of, 9-3238
Achilles, Greek hero
 and sacrifice of Iphigenia, 11-3808-10
 in Iliad, 6-1983-84
Acids, chemical characteristics, 12-4405-06
 how to remove stains of, 2-618
Aconcagua, volcano, height of, 7-2313
Aconite, plant
Picture, flower (gravure), 19-7180
Acorns, as food, 11-4019
 planting in bottle, 7-2516
Pictures (in color), 11-4021
 of Turkey, or moss-cupped, oak, 11-4028
Acqui. Ancient city of Piedmont, Italy, with a 12th-century Gothic cathedral and remains of a Roman aqueduct.
Acre. Coast town of Palestine which was besieged and captured from the Saracens in 1191 by the Crusaders under Richard I. In 1799 the Turks, aided by British sailors under Sir Sidney Smith, resisted Napoleon's efforts to capture it. siege of in 1191, 7-2587-88
Acrolinium, plant
Picture, flower (gravure), 19-7178
Acropolis, Athens, description, 2-705
Pictures, 2-705; 3-1068, 1069; (gravure), 15-5349
Acrostics, 18-6640
Act of God, meaning of term, 13-4595
Actium, Battle of. Fought 31 B.C. off the western coast of Greece. The ships of Octavius defeated those of Antony and Cleopatra and thus established Octavius as Augustus Cæsar.
Adam brothers, British architects, 18-6770-71
Adam, Robert, influence on furniture, 18-6771
Adams, Mrs. Abigail, wife of John Adams, 2-392, 394
Picture, portrait, 2-391
Adams, Henry (1838-1918). American historian and biographer.
Adams, Herbert, American sculptor, 14-4940

GENERAL INDEX

Adams, John, president of U. S.
administration, 5-1702; 11-3937
life, outline of, 11-3951
relation to Federalist party, 5-1702
Pictures
 portrait, 5-1694
 portrait, in group, 4-1167
 portrait (graveure), 11-3946
Adams, John Couch, discovery of planet Neptune, 10-3414
Adams, John Quincy, president of U. S.
administration, 6-1914, 1916; 11-3939
* life, 10-3489-90
 life, outline of, 11-3951
Pictures
 portrait, 10-3491
 portrait (graveure), 11-3946
Adams, Maude, American actress
Picture, as Peter Pan, 13-4660
Adams, Samuel (1722-1803). American patriot, born in Boston; leader in opposition to British rule; signer of Declaration of Independence; governor of Massachusetts, 1794-97.
 escaped from British at Lexington, 4-1163
 opposed ratification of Constitution, 5-1698
Adams, Sarah Fowler, hymn-writer, 12-4437
Adams, Seth, introduced merino sheep in U. S., 15-5576
Adams, William Taylor, *see* Optic, Oliver
Adam's apple, name for larynx, 10-3555
Question about
 What is Adam's apple and where did the name come from? 16-5961
Adaptation to environment
 in cactus, 9-3267-68
 in caterpillars, 18-6528
 in feet of water-birds, 11-3881
 in plants, 1-329-34
 in seaside plants, 14-5157
 in trees, 11-4094
Adcock, A. St. John, *see* Poetry Index, for poem and note
Addams, Jane (1860-). An American sociologist who did much to promote the cause of woman suffrage. After the outbreak of the World War she attended the International Congress of Women at The Hague and was elected its president. Published: *Twenty Years at Hull House*; *A New Conscience and an Ancient Evil*; *The Long Road of Woman's Memory*.
Adder, snake
Picture, 15-5413
Adder's tongue, fern
Pictures (in color), 10-3726-27
Adder's tongue, flower, description, 17-6275-76
 on Pacific coast, 19-6927-28
Picture, 17-6277
Addison, Joseph, English writer
 life and writings, 5-1620-22
 as essay writer, 8-2865
 See also Poetry Index for poems and notes
Picture, portrait, in group, 5-1622
Ade, George, author, 14-5011
Adelaide. Capital and commercial centre of South Australia, on the Torrens River. One of the pleasantest Australian cities. It exports wheat, flour, copper, wine and wool.
 description of, 7-2470
Adelaide, song, account of, 10-3612
Aden, British possession, 9-3182; 18-6676
Adenoids. A term applied to an excessive growth of spongy tissue in the region above the soft palate, the nasopharynx. It causes such a narrowing of the air passage that breathing through the nose is difficult and a congested condition of the mucous membrane lining the nose and throat occurs. Treatment consists in early and complete removal of the growth, preferably under a general anæsthetic. Many children have this defect.
Adjutant stork, *see* Marabou
Admetus, king of Thessaly, and Alcestis, 8-2703
Admirable Crichton. Name given to James Crichton, a Scotsman of the 16th century, who, though assassinated at Mantua at the age of 22 or 24, had a romantic career and was a distinguished Latin scholar. The *Admirable Crichton* is the title of a comedy by Sir J. M. Barrie.
Admiral (from Arabic *amir*, commander, *al*, the Arabic article). The term is said to have been introduced into Europe in the 12th or 13th century. It is now used for the commander-in-chief of a navy. In the British navy admirals

Admiral (*continued*)
are of four grades, in the United States of three.
Adonis. A beautiful youth beloved by Venus, or Aphrodite, born of a myrrh tree, who in his youth was slain by a wild boar. So great was Aphrodite's grief that the gods required him to spend only half or a third of the year in Hades. The legends about Adonis have sprung from the rites of the Adonia, a festival celebrated in midsummer.
Adrenalin, extract from suprarenal glands, 9-3223
 made from coal-tar, 13-4532
Adrian, Roman emperor, *see* Hadrian
Adrian IV (Nicholas Breakspear), pope, 8-2848
Adrianople. City of European Turkey, on the Maritza. Founded by Hadrian, and capital of the Turks 1361-1453, it has many fine buildings, including the great mosque of Selim II.
 population and situation, 13-4806
 lost by Bulgaria to Greece, 14-4926
Adriatic, ship. *Picture*, 12-4430
Adriatic Sea. Arm of the Mediterranean lying between Italy, Jugo-Slavia and Albania. About 500 miles long and 110 miles broad, it is almost tideless and very salt, probably because no large rivers except the Po flow into it. Brindisi, Baros, Ancona, Venice, Trieste, Pola, Fiume and Spalato are the chief ports.
Adventures of Baron Munchausen, extracts and note, * 4-1521-27
Adventures of Don Quixote, *see* Don Quixote
Advertisement, contest, game, 3-903
Æacus, judge of the dead, 9-3238
Ægean painting, *see* Painting, Ægean
Ægean sculpture, *see* Sculpture, Ægean
Ægeans, scattered by Dorian invasion, 11-3988
Ægina, island
 sculptors, ancient, 11-3994
Pictures
 ancient sculpture, 11-3993
 Temple of Aphaia, 3-1071; (graveure), 15-5354
Ægospotami, Battle of, 3-1081
Æneas, Trojan warrior
 settled in Italy, 4-1192
 story of, in Æneid, 6-1986-89
Æneid, by Virgil, story of, * 6-1986-89
Æolian harp, question about, and answer, 8-2742, 2881
Æolians, ancient Greek people, 3-1072
Aerators for N. Y. water supply, 14-5057
Aeronautics, *see* Aviation
Aeroplanes, *see* Airplanes
Æschylus, Greek dramatist, 16-5752
Picture, portrait, 16-5747
Æsculapius, son of Apollo, legendary physician, 8-2722
 account of, 9-3234
 killed by Zeus, 8-2703
Æsop. Greek teller of fables, originally a slave in Samos; born, probably Asia Minor about 620 B.C.; killed, probably Delphi, 561.
 fables of
 Ant and the grasshopper, 1-58
 Ass and his driver, 4-1186
 Belling the cat, 2-540
 Boy who cried "Wolf!" 6-1969
 Cat and the mice, 13-1752
 Crab and her mother, 4-1186
 Dog and the shadow, 11-3986
 Dog and the wolf, 17-6323
 Dog in the manger, 14-4946
 Donkey's wish, 15-5538
 Dove and the ant, 14-4946
 Farmer and the stork, 3-1102
 Fir tree and the bramble, 13-4752
 Fowl and the jewel, 11-3986
 Fox and the crow, 2-540
 Fox and the frog, 11-4144
 Fox and the goat, 6-1969
 Fox and the grapes, 11-3986
 Fox and the lion, 6-1969
 Fox and the wolf, 15-5538
 Fox in the well, 2-540
 Frogs who wanted a king, 2-539
 Hare and the tortoise, 2-539
 Hen and the fox, 11-4141
 Jupiter and the ass, 6-1969
 Lark and her young ones, 15-5538
 Man who gave up singing, 11-3986
 Mercury and the woodman, 3-1102
 Monkey and the dolphin, 4-1342

GENERAL INDEX

Æsop—fables of (*continued*)

- Old hound, 4-1342
- Old man and his sons, 4-1186
- Peacock and Juno, 11-4144
- Stag looking into the water, 3-1102
- Tortoise and the eagle, 4-1186
- Town mouse and the country mouse, 4-1342
- Travelers and the ax, 6-1969
- Travelers and the bear, 13-4752
- Two loaded asses, 1-58
- Villager and the viper, 6-1969
- Wolf and the kid, 1-58
- Wolf and the kid, 3-1102
- Wolf in sheep's clothing, 2-540

Ætna, Mount, volcano, 13-4568

height of, 7-2313

Picture, imaginary section of (in color), facing 2-385

Affidavit. A sworn statement in writing made before an authorized magistrate or officer. It must sufficiently identify the person who makes it, usually by his subscribed signature.

Afghan bands, trick, 3-1025

Afghanistan. Independent Moslem state on the Indian northwest frontier; area, about 250,000 square miles; capital, Kabul. The people are warlike and industrious, and are ruled absolutely by an Amir; agriculture and silk, woolen and carpet manufactures are their chief pursuits. Three-quarters of the country is mountainous, the chief trade highway to India being by way of the Khyber Pass. Kandahar and Herat, which was founded by Alexander the Great, are the principal towns.

invasions of, 18-6591

Afghans. The inhabitants of Afghanistan, who are not fused in a single nationality, but are a collection of tribes of Caucasian origin held together by the paramount tribe—the Durani of Kabul.

Africa

* British Empire in Africa, 9-3047-58

* description, 18-6804-14

* exploration, 2-465-71

* How Africa has been divided, 18-6803-14

maps, 2-469; 18-6805

physical geography, 18-6804-06

political control by European nations, 18-6805, 6811

racas, chief ones, 9-3047

racas invading, 9-3047-48

rivers, 18-6806

water power, 15-5430

Pictures, 9-3046-58; 18-6802, 6809

See also names of countries in Africa

Africa, South, *see* South Africa

After-images, seen with eyes shut, 7-2359

Agamemnon, king of Greece, and sacrifice of Iphigenia, 11-3808-10

Agar-agar, from seaweed, 10-3722

Agassiz, Louis, naturalist, 19-7053-54

Picture, portrait, 19-7053

Agassiz, Lake, prehistoric lake, 1-112

Agatha, St., martyrdom of, 6-1997

Agave, plant, produces Sisal hemp, 8-2788

Picture, 8-2785

Age

Poem about

Young and Old, by Charles Kingsley, 8-2906

Questions about

Did the people of long ago live longer than the people of to-day? 14-5218

How long do animals live? 1-185

What is it that makes wrinkles in old people's faces? 14-4952

Why does a thing go yellow with age? 14-5085

Why does everyone grow old? 7-2362

Agelados, Greek sculptor, 12-4215

Agincourt, Battle of, in year 1415, 5-1684

notes, with pictures, 5-1685

Poem about

Ballad of Agincourt, by Drayton, 5-1885

Agnes, St. Patron saint of purity; in January, 304, during the reign of Diocletian, she suffered martyrdom at the age of 13.

Agnostic. One who professes ignorance of the existence of God. The word was coined in 1869 by Thomas Huxley, and among English-speaking philosophers Herbert Spencer is the best-known agnostic.

Agra, India, description, 8-2700

Picture. Pearl Mosque (gravure), 9-3096

Agram, or Zagreb. Capital of Croatia, Jugo-Slavia, with a splendid Gothic cathedral and a large agricultural trade.

Agricola. Roman general in England, 4-1320; 5-1863

Agriculture. The tilling, or cultivation, of the ground. The term is especially applied to large areas used to supply food for man and beast. The theory of agriculture treats of different soils, plants and seeds, manures, rotation of crops, etc. It involves a knowledge of chemistry and geology.

American Indians as farmers, 1-161

modern farms of Indians, 19-7242

dry farming, 18-6432, 6434

education in, 12-4310

irrigation, value of, 7-2546

machinery, invention and value of, 19-7209-11

productive land, area in various countries, 10-3398

Regions, agriculture in

Alaska, 16-5790, 5792

Australia, 7-2464-66, 2468, 2470

Bulgaria, 14-4926

Denmark, 15-5296

Egypt, Ancient, 3-808

England

changes in 19th century, 7-2293-96

conditions under Henry VIII, 5-1817

Liebig's introduction of fertilizers, 2-592

wheat varieties, 5-1758, 1760

France, 11-3818, 3821-22

Germany, 12-4164, 4166

Greece, Modern, 14-4913

Hawaii, 15-5450

Ireland, 8-2936, 2938

Italy, 13-4570

New Zealand, 7-2576

Portugal, 14-5188

Rumania, 14-4922

Russia, 16-5852, 5854

United States, 4-1470-74; 5-1851-56; 7-2409-14; 10-3415-18

animal products, 9-3207-08

California, 19-6848

crops, principal, 8-2678-80

farm life, 1783, 5-1700

North Central states, 15-5274-84

Northeastern states, 10-3404-08

Southern states, 13-4520-24

See also Cereal crops; Soil; Wheat

Question about

Why do farmers grow clover one year and wheat the next? 4-1453

Agriculture, Department of, *see* United States—

Agriculture, Department of

Agrimony, flower, *Picture* (in color), 13-4878

Agrimony, Hemp, *see* Hemp agrimony

Agrippina the Elder. Wife of Germanicus and mother of the Roman emperor Caligula; died A.D. 33.

Agrippina the Younger, mother of Nero, 5-1862

Picture, bust of, 5-1862

Aguinaldo, Emilio. Leader of Filipino insurrections against Spain and the United States. A well educated Chinese *mestizo* (mixed blood) who was exiled from the Philippines by Spain for his part in the rising of 1896. In 1899 he assumed the offensive against the United States, was captured, in 1901 took the oath of allegiance and retired from public life.

revolt in Philippines, 10-3588

Aguti, animal

Picture, 3-1130

Ahaz, king of Judah, 2-655

Ahriman, evil god of Zoroastrianism, 9-3092

Ah Sam, and arctic exploration, 13-4715

Ai, three-toed sloth, 7-2394

Picture, 7-2395

Albonito, Porto Rico

Picture, 10-3593

Aida. In Verdi's opera of this name an Ethiopian princess who, enslaved by the Egyptians, dies with her lover when he is entombed alive.

Aidan, missionary from Ireland, 8-2930

Ainsworth, William Harrison, English novelist, 11-3891-92

Picture, portrait, 11-3891

Ainu, early inhabitants of Japan, 2-562

Air, blue appearance in distance, reason for, 9-3102

composition of, 12-4504

GENERAL INDEX

Air (continued)

compressed
 used by divers, 12-4186
 used in painting, 19-7023
 used in submarines, 1-198
 used in torpedoes, 1-198; 18-6821
 used on trains, 19-7212
 distance extending from earth, 1-143
 experiments with, 19-7083-84
 filtration in nose, before reaching lungs, 4-1326
 food supply for trees, 11-4093-94
 liquid air, 15-5425-26
 pressure of, *see* Atmospheric pressure
 rain caused by chilling of, 8-2921
 temperature of earth regulated by, 8-2666
 warmer near the ground, 8-2664
See also Ventilation
Questions about
 Does everything in the air move with the earth? 16-5746
 Does the air ever get used up? 1-312
 If a feather is lighter than air why does it ever settle? 7-2362
 Is impure air lighter than pure air? 18-6692-93
 Is night air bad for us? 12-4278
 Is the knob on the seaweed filled with air? 4-1233
 What is the air made of? 12-4504
 Where does the bad air go? 4-1453
 Why are miners not killed by bad air? 2-460
 Why does damp air make us ill? 12-4400
 Why does the air not stop the light of the sun? 15-5620

Air-brake, invention of, 19-7212

Air-cells, in lungs, function, 4-1328

Air plant, or *epiphyte*. A plant which grows upon other plants but is not a parasite, as it derives its sustenance from the air. In the temperate regions many mosses, lichens and algae assume this habit; in the tropical regions, ferns and orchids.

Air-pump, invention of, 4-1244

Aira, grass

Picture (in color), 10-3523

Airedale terrier

Picture (gravure), 2-716

Airplanes

fighting and bombing planes, 1-177
 forest fire control by, 8-2808
 invention of, 1-170-72
 mail service in U. S., 8-2658
Pictures, 1-173, 175, 177-79, 183, 184
 mail service in U. S., 8-2662
 Spirit of St. Louis (gravure), 1-frontis.

Airships, 1-168-70

Leonardo da Vinci's experiments, 3-824
 parts of, 1-169

Pictures, 1-166, 169, 171; (gravure), 13-frontis.

Airy, George Biddell, British astronomer, 1-284
 opposed submarine cable, 12-4294

Picture, portrait, 1-281

Aisne. Tributary of the French Seine. It rises in the Argonne and flows past Rethel and Soissons to join the Oise at Compiègne. The country around it was one of the famous war areas during the World War, 1914-18.

Aix. Ancient French city, formerly capital of Provence. The Romans built baths round its warm springs in 123 B.C., and the baptistry of its 11th-century cathedral is believed to have been a temple of Apollo.

Aix-la-Chapelle (Aachen), account of, 12-4170
 cathedral, 16-5725

Picture, cathedral, 16-5723

Aix-les-Bains. French watering-place in Savoy, in a beautiful valley near Lake Bourget. Its warm springs have been famous since Roman times; the Arch of Campanus and ruins of a Roman temple and bath are still to be seen.
Ajaccio. Capital of Corsica, with a considerable trade and a large harbor. The birthplace of Napoleon, it has a 16th-century cathedral.

Pictures, 11-3315

Akbar, Indian ruler, 8-2824

Picture, portrait, 8-2821

Akhenaten, king of Egypt, *see* Amenhotep IV

Akkad, *see* Chaldæa

Akron. City of Ohio, leading the world in rubber manufacture, automobile tires, hose, rubber bands, etc. Pottery also important.

Akyab, Burma

Picture, mosque (gravure), 15-5478

Alabama. Southern state; area, 51,998 square miles; capital, Montgomery. Cotton, corn, oats, wheat and sweet potatoes are produced. Birmingham is a centre of the coal and iron industry, and cotton is manufactured. Mobile is the chief port. Abbreviation, Ala. Nickname, "Cotton State." State flower, goldenrod. Motto, "Here we rest." First settlement, near Mobile Bay, 1702.

described in the Southern States, 13-4517-28;
 14-4889-4900

made a state, 6-1910; 11-3938

manufactures

cotton, 9-3214

iron and steel, 13-4526

seceded from Union (Jan. 11, 1861), 7-2430;

11-3942

Pictures

blast furnace, 14-4891

flag (in color), 19-7190

marble quarry, 13-4528

Wilson dam, 7-2312

Alabama, ship

Picture, battle with Kearsarge, with note,

7-2435

Alabama Claims. Claims made by the United States upon Great Britain for damages done to American shipping in the Civil War by privateers. One of the privateers, the Alabama, was a flagrant offender against the laws of neutrality. A court of arbitration meeting at Geneva in 1871-72 allowed claims to the amount of \$15,500,000.

Alabama River. Its source formed by the junction of the Coosa and Tallapoosa rivers, Alabama. Flows into the Mobile River. 350 miles.

Alabaster, principal mines in Italy, 13-4572

use in Gothic sculpture, 13-4853

Picture, of workmen, 13-4571

Alamance Creek, Battle of, 1771, 4-1162

Alamo, San Antonio, Texas, story of, 18-6826, 6829

Picture, 18-6829

Aland Islands, belong to Finland, 18-6461

Alarcon, Hernando de. Spanish navigator who in 1540, in command of an expedition for Colorado, reached the Colorado River and the Grand Canyon.

Alaric. West Gothic king and conqueror; born, Peuce on the Danube, probably 370; died, Cosentia, Italy, 410; sacked Rome, 410.

Alaska

* account of, 10-3583-84

agriculture, 16-5790, 5792

climate, 16-5795

fish and fisheries, 16-5792

fish and furs, 3-1000

* history and description, 16-5789-95

mines and minerals, 10-3584; 16-5790

population, 16-5792

railroads, 16-5792

sold by Russia to U. S., 10-3584; 16-5790

Pictures, 16-5789, 5791, 5793-95

Juneau, and mountain scene, 10-3585

mail-carrier uses reindeer, 8-2653

sunrise over Tanana River, 10-3582

Albania, account of, 17-6348

history, since 1912, 18-6462-63

Albany. Capital of New York State, on the Hudson. Formerly a Dutch settlement. It has two cathedrals and a magnificent Capitol. It is an important manufacturing city.

Capitol, note and picture, 11-3779

founded 1615, 2-550

Albatross, bird, account of, 11-4126

size of, 8-2720

Pictures, 8-2759

in flight, 11-4125

Albemarle, 1st duke of, *see* Monk, George

Albert I. Became king of the Belgians in 1909. The younger son of Philip, Count of Flanders. Married Princess Elisabeth of Bavaria; three children: Leopold, Duke of Brabant (born 1901); Charles, Count of Flanders (born 1903); and Marie José (born 1906). During the World War he was the centre of the active defense of his country; in the general offensive of October, 1918, commander of the northern army groups, consisting of Belgians and French. After the armistice he organized improvements in the country and studied world-trade conditions to find outlets for Belgian commerce by visiting other countries.

GENERAL INDEX

Albert Memorial. Standing in Kensington Gardens, London, this monument was erected to Albert, the Prince Consort of Queen Victoria. Its base is flanked with sculptures of the most famous figures in science and art.

Albert Nyanza, Lake, one source of Nile discovered by Baker, 2-471

Alberta. Westernmost of the Canadian prairie provinces; area, 255,000 square miles; capital, Edmonton. Once a ranching district, it now produces vast quantities of grain besides being the chief coal-mining province in the Dominion. Calgary is the largest town.

became province of Dominion of Canada, 4-1490

coal beds of Cretaceous period, 5-1660
sheep ranch, 15-5575

Albertus Magnus. German philosopher and monk. Born, Lauingen, Swabia, about 1206; died, Cologne, 1280. Translated Aristotle's works.

Albi, France, cathedral, 11-3820; 17-6160
Picture, cathedral (gravure), 17-6172

Albion

Question about

Why did the ancients call England Albion? 16-5741

Albumen, hardens when boiled, 13-4827
in egg, 8-2872

Albumins, digestion of, 6-2085

Alcala. Famous old Spanish cathedral city near Madrid. It contains the Colegio de San Ildefonso, once a famous university, and was the birthplace of Cervantes.

Alcazar

Question about

What does the word Alcazar mean? 9-3356

Alcazar, Seville, *see* Seville

Alcestis, wife of King Admetus
sacrifice of, 8-2703-07

Alchemy. Chemistry in the Middle Ages wherein the great object was the transmutation of the baser metals into gold, the discovery of a cure for diseases, and the means of indefinitely prolonging life.

Alcibiades, Greek leader, 2-706

Picture, portrait, 2-701

Alcock, John, aviator, 1-178

Alcohol (C₂H₅OH). A liquid, ethyl hydrate formed by the fermentation of watery sugar solutions. Methyl alcohol comes from the destructive distillation of wood. Pure alcohol is a colorless liquid of spirituous smell and burning taste. It is used as a solvent in the arts and in medicine. Different kinds of alcohol sometimes named according to their source, as grain alcohol, root alcohol and moss alcohol.

effects

* enemy of life, 8-2681-84

effect on blood, 3-806, 937

lessens resistance to microbes, 2-559

sense of right and wrong influenced, 8-2684

good uses, 2-559

law against children's use of, 14-4915-16

manufactured from potatoes, 7-2623-24

poison to living creatures, 2-559

tax on, 13-4556

yeast produces, 2-559

Alcohol thermometer, 7-2648-49

Alcott, Amos Bronson, 13-4630, 4632

Alcott, Louisa May, author, 14-5014-15

Picture, home in Concord, 14-5007

Alcuin, English scholar, life and influence, 14-5248

and Charlemagne, 10-3430

Aldebaran, star, 11-3786, 3924

Alden, John. One of the Pilgrim Fathers who came to America in the Mayflower. He was born in England in 1599 and was a cooper by trade. He settled in Duxbury, Mass. In 1621 he married Priscilla Mullens. He was a magistrate in the new colony for more than 50 years and outlived all his fellow voyagers on the Mayflower.

Picture, house in Duxbury, 2-547

Alden, Margaret H., *see* Poetry Index for poem and note

Alder, White, shrub called clethra, 15-5608

Alder trees, description and pictures, 11-4102

Alderney. Northernmost of the Channel Islands, lying 8 miles from Cape de la Hague, in Normandy. Area, 1,962 square miles. It has a valuable breed of cows.

Aldobrandini Marriage, Vatican Museum, Rome, Greek wall-painting, 2-451

Picture, 2-447

Aldrich, Thomas Bailey, American author—
writings of, 13-4815

See also Poetry Index for poem and note

Aldus Manutius, *see* Manuzio, Aldo

Ale-hoof, name for ground-ivy, 14-4979

Alençon. Pleasant old French town in Normandy, with a 16th-century Gothic cathedral and a famous manufacture of point lace.

Aleppo. Syrian city trading in silk, cotton, wool, leather, rugs, tobacco, oil, wine and fruit.

Pictures, 18-6669, 6679

Alert, ship, captured by the Essex, 5-1704

Alessandria. Cathedral city and fortress of Piedmont, Italy, manufacturing macaroni, silk and textiles.

Alessandro Filipepi, *see* Botticelli, Sandro

Alessi, Galeazzo, Italian architect, 17-6299

Aletsch glacier, Switzerland, 7-2316

Aleutian Islands. Chain of about 150 volcanic islands, belonging mostly to Alaska, at the southern end of the Bering Sea. Reindeer, dogs, foxes and seals are found here.

See also 10-3584

Aleuts. Natives of the Aleutian Islands, North Pacific, belonging to the Eskimo stock of the North American Indians.

Alewite, herring, 16-5776

Alexander I, tsar of Russia, 16-5694

Alexander II, tsar of Russia, 16-5694

Picture, statue in Sofia, 14-4925

Alexander III, tsar of Russia, 16-5696

Alexander III, king of Scotland, 12-4208

Alexander the Great, king of Macedonia

* conquests and influence, 2-707-08

burned palace at Persepolis, 11-3876; 14-5210

defeated Darius III of Persia, 3-918

in Egypt, 3-820

influence on Greek art, 12-4459

introduced cotton into Europe, 8-2783

invasion of India, 8-2822

stories about

Alexander and the pirate, 8-2961

battle with the lion, 8-2964

crossing the river, 8-2964

cutting the Gordian knot, 8-3013

talk with artist, 8-2963

Pictures, portrait, 2-701

at Persepolis, 3-913

before battle of Arbela, 3-913

defeat of Darius by Alexander, 2-709; 3-1077

sarcophagus of, 12-4466

Alexander, Mrs. Cecil Frances, hymn-writer, 12-4437

See also Poetry Index for poems and notes

Alexander, John W., American painter, 10-3452

paintings in Library of Congress, 5-1536

Pictures

Black and Green (gravure), 10-3461

Portrait of Walt Whitman, 13-4729

Alexander, Sir William, received grant of Nova Scotia, 2-682

Alexander Archipelago, Alaska, 10-3584

Alexanders, flowers

Picture (in color), 14-4982

Alexanderson, E. W. F., and radio inventions, 17-6368

Alexandra, Caroline Marie Charlotte Louise Julie (1844-1925). Late dowager queen of England. Born at Copenhagen, the daughter of Christian IX of Denmark. Married Albert Edward, Prince of Wales, in 1863, had three sons and three daughters. Became queen of England when Albert Edward succeeded to the throne (1901) and reigned with him until his death in 1910. Mother of George V, present king of England.

Alexandria, Egypt, founded by Alexander the Great, 3-820-21

lighthouse, ancient, 3-821; 7-2604

sculpture of, 12-4459

Picture, ancient lighthouse, reconstruction (gravure), 7-2608

Alexandrite. *Picture (in color), facing 19-7225*

Alfalfa, or lucerne, fodder plant, 7-2412

description and picture of field, 15-5279

Picture, being stacked, 7-2413

Alfonso I, king of Portugal, 14-5183

Alfonso II, king of Portugal, 14-5183-84

Alfonso III, king of Portugal, 14-5184

GENERAL INDEX

- Alfonso XIII** (1886-). King of Spain, the posthumous son of Alfonso XII and of Maria Christina, Archduchess of Austria, who became regent during his minority. Early reign marked by troubles abroad and dissatisfaction at home. War against the United States deprived Spain of colonial empire. He took the reins of government in 1902. Married Princess Ena in 1906, granddaughter of Queen Victoria. Several attempts to assassinate him were made.
- Alfred the Great**, king of England
 * life and reign, 4-1432-34; 13-4585-86
 and Othhere, Polar explorer, 8-2977
 as a writer, 1-299
 built up a navy, 11-3914, 3916
 story of burning cakes, 4-1432-33
Pictures, portrait, 13-4583
 scenes in his life, 4-1433; 13-4587
- Alfred**, ship, first carried Congress Colors, 19-7182
- Algæ**, group of plants
 account of, 10-3721-22
 value to man, 5-1627-28
See also Seaweeds
- Algeiras**. Nearest town in Spain to Gibraltar and first to be taken by the Moors. Here in 1906 an international conference for the regulation of Moroccan affairs was held.
- Alger**, **Horatio**, books for children, *14-5014
- Algeria**, conquered by French, 1830, 2-467
 description, 18-6810
 struggle against France under Abd-el-Kader, 4-1255
See also Algiers
- Algiers**, city in Algeria, 11-3824
 became French possession, 10-3572; 18-6808
- Algoa Bay**. Sheltered South African roadstead containing the harbor of Port Elizabeth. Bartholomew Diaz landed here in 1488.
- Algol**, star, 11-3926
Picture, 11-3923
- Algonquin Indians**. The most important linguistic stock of the North American Indians. They include the Blackfoot, Ojibwa, Micmac, Abnaki, Delaware, Cheyenne, Arapaho and many other tribes. They occupied the territory from Labrador to the Rocky Mountains, with the exception of the territory of the Iroquoians. Champlain aided against Iroquois, 2-680
- Alhambra**, palace in Granada
 description, 15-5466-68
Pictures, 15-5465, 5467, 5469; (gravure), 15-5473-76
- Ali Baba and the Forty Thieves** (story), 2-537-38
- Alibi**. From Latin *alius*, other. In law, the plea of having been, at the time of the commission of an act, elsewhere than at the alleged place of commission.
- Alicante**. Important Spanish Mediterranean port, exporting esparto grass, lead, wine, fruit and almonds.
- Alice in Wonderland**, by Lewis Carroll
 summary and quotations, with pictures, 3-1089-98; 4-1179-86, 1233-42
- Alien**. A person owing allegiance to another state, used in contradistinction to a citizen. An alien may become a citizen by naturalization. Aliens do not possess political rights, nor are they subject to the political duties of a citizen. In the United States they are admitted by quota. In Canada admission is selective.
- Alien Laws**, U. S., under John Adams, 5-1702
- Alimentary canal**
Picture, magnified diagram of villi, 6-2083
- Alisan**, **Leon**, *see* Poetry Index for poem and note
- Alkalies**, chemical characteristics, 12-4405-06
- All Saints' day**, a holiday in Louisiana, 6-2094
See also Hallowe'en
- Allahabad**. Capital of the Indian United Provinces, at the junction of the Ganges and Jumna. A railway, commercial and printing centre, it has two cathedrals, and manufactures indigo. Here is the Pillar of Asoka.
- Allegheny Mts.** Low range running parallel to the east coast of the United States for 1,300 miles. Height from 1,500 to 5,000 feet. Here are great coal-fields.
- Allegheny River**. American river. Rises near Raymond, Penn. Flows into the Ohio River. 350 miles.
- Alleluia**, name for wood sorrel, 18-6570
- Allen**, piano-maker, 5-1796
- Allen, Ethan** (1737-89). American soldier born in Connecticut, but a resident of Vermont. captured Fort Ticonderoga, 4-1164; 6-1906
Pictures
 capture of Ticonderoga, 6-1907
 fort to-day, 18-6836
- Allenby, Edmund, Viscount**. English field-marshal; born, 1861; conquered Palestine, 1918.
- Allerton, Ellen P.**, *see* Poetry Index for poem and note
- Alligator-wood**, comes from sweet-gum, 12-4510
- Alligators**, account of, 14-5229
 origin of name, 14-5229
 use as scavengers, 1-97
Pictures, 1-156; 14-5226
- Allingham, William**, *see* Poetry Index for poems and notes
- Alliteration**, explanation, 17-6265
 in early English poems, 1-321
- Alloy**. An artificial compound of two or more metals combined while in a state of fusion. Copper and tin thus fused form the alloy bronze; and lead and antimony form the alloy known as type-metal. An artificial metallic mixture containing quicksilver is called an *amalgam*.
- All's Well that Ends Well**, by Shakespeare
 story of, 8-2686
- Allspice**, account of, 8-2992
See also Pimento
Picture of plant (in color), 8-2998
- Allston, Washington**, American painter
 life and work, 9-3328, 3330
Picture, Spanish girl, 9-3331
- Allward, Walter S.**, Canadian sculptor, 14-5078
Pictures
 Baldwin-Lafontaine monument, 14-5080
 South African Memorial, 14-5077
- Alma, Battle of the**. First battle in the Crimean War, fought in 1854 between 35,000 Russians and 30,000 French and 25,000 British. The allies just succeeded in capturing the heights beyond the river Alma.
- Alma mater**. Term commonly applied to the university or college where a man or woman has been trained. The phrase is Latin and means "kind mother."
- Alma-Tadema, Miss Lawrence**, *see* Poetry Index for poems and notes
- Alma-Tadema, Sir Lawrence**. English classical painter; born, Dronryp, Holland, 1836; died, Wiesbaden, Germany, 1912.
- Almagro, Diego del**, friend of Pizarro, 19-6861
- Almanacs**, **Nautical**, 2-457
- Almeria**. Cathedral city and port on the Spanish southeast coast. In Moorish times it was the next richest city after Granada.
Picture, cave dwellings, 14-5045
- Almonds**, account of, 6-2275
 burnt almonds, recipe for, 2-752
Pictures, 6-2274
 orchard in Colorado, 7-2554
- Aloes**, medicinal plants, 8-2911
Picture, 8-2909
 (in color), 8-2999
- Aloha**, Hawaiian word, meaning, 15-5450
- Alpaca**, fleece-bearing llama, 5-1600
Picture (gravure), 5-1604
- Alpha Centauri**, star, 9-3034, 3039; 11-3783-84
- Alphabet**
 deaf-and-dumb, how to use, 18-6523
 making of, 10-3548
 Morse alphabet for telegraph, 17-6050, 6052
See also Writing
Pictures, illustrated alphabet, 16-5926-27
- Alpheus**, in mythology, 9-3236
- Alpine plants**, characteristics, 15-5601
- Alpine races**. Branch of the white race that are typically round-headed; they are not so white in complexion as the Nordic, nor so dark as the Mediterranean branch of the white race. The Slavs are typically Alpine.
- Alps**, description, 16-5997-98, 6003; * 17-6083-89
 tunnels through, 16-6008
Pictures, 7-2315, 2317; 16-5997, 5999, 6003, 6009; 17-6083-89
 bridges in the Tyrol, 1-40
 Maloja Pass and Mont Blanc, 6-2174
 Mer-de-glance, near Chamonix, 11-3819
- Alps, Australian**. Mountain range in New South Wales and Victoria, containing Mount Kosciuszko, 7,340 feet.
- Alps, Southern**, New Zealand, *see* Southern Alps

GENERAL INDEX

Alsace-Lorraine. Old province of France, between the Vosges and Rhine. Formerly a confederation of independent towns, it was occupied by France in 1648, after the Thirty Years' War, remaining French up to 1871, when it was taken by the Germans. In 1918 it was again occupied by France. Strassburg, the capital, Mulhouse, with important cotton manufactures, and Colmar are the principal towns.

French and German control, 18-6458

French control, after 1919, 11-3824

Germany controlled, after Franco-Prussian War, 10-3573

iron-fields of Lorraine, 12-4168

Picture, girl, showing head-dress, 11-3817

Altai Mts., Asia, 18-6586

Altamira, Spain, cave drawings, 1-196

Alteration of generation, in plants, 3-884

Alternative vote. System of voting for more than one candidate at elections. Each voter marks his ballot paper with 1, 2, and so on, against the names on the list, 1 being his first choice and 2 his second. The system secures fairer representation of the will of the electors.

Altitude, effect on temperature, 8-2664

Altsheler, Joseph A., author, 14-5016

Aluminium or aluminium

account of, 9-3210

bauxite, source of, 13-4526

how made, 16-5948

specific gravity, 14-5038

Alva, Ferdinand, Duke of. Spanish general; born, 1508; died, Thomar, Portugal, 1583; established the Council of Blood in the Netherlands.

Amadis de Gaula, medieval romance, 19-7126

Amalfi. Beautiful old city on the Gulf of Salerno, Italy, founded under Constantine the Great. Once a powerful republic. It has a fine Byzantine cathedral.

Amateur theatricals, stage and scenery, 16-5763

See also Plays for children

Amati family, violin-makers, 18-6700

Amazon River. Greatest river in South America and the world, draining an area of over 2,700,000 square miles if the Tocantins River basin is included. It rises in the Andes and flows 3,000 miles through Peru and Brazil into the Atlantic. In many places it is between four and six miles wide, while its chief tributary, the Madeira, almost rivals it in the volume of its waters. Though the Amazon is navigable for ocean steamers up to Iquitos, 2,300 miles from its mouth, the only important towns it passes are Manaus and Para. It is estimated that less than a million people live in its basin. Its dense jungles, or selvas, are flooded during the rainy season.

source and size of, 7-2538; 19-6863

Pictures, 19-6863

rubber to be shipped, 4-1410

Amazonite, semi-precious stone

Picture (in color), facing 19-7225

Amazons, legendary women-warriors

in Greek sculpture, 12-4218

story, Achilles and the Amazon queen, 1-53

Pictures, sculptures, 1-53; (gravure), 12-4334

Ambassador. A diplomatic agent of the highest rank, who represents his country or his ruler to the government or at the court of another country.

Amber, flies in, 13-4824

formation, note with pictures, 13-4824

power of attraction, 4-1243

Ambergris, substance from whales, 6-2215-16

Ambrose, Saint, bishop of Milan

adopted four scales from Greek music, 19-6900

as hymn-writer, 12-4435

life of, 13-4860

Picture, in group, 13-4861

Ameba, simplest form of life, 2-661-63

description of, for game, 8-2880, 3023

Picture, 2-661

Amen, a god of ancient Egypt

Picture, 3-816

Amen-Re, Great Temple of, 14-5212

Amendment. An alteration proposed to be made in the draft of a bill or motion before a meeting which has the power to vote. The amendment must be voted upon before the bill or motion is voted upon. Sometimes the passing of the amendment means the passing of the bill or motion; at other times an amendment entirely reverses the sense of the original bill or motion.

Amendments to U. S. Constitution, see United States—Constitution—amendments

Amenhotep III, king of Egypt, see Amenophis III

Amenhotep IV (Akhenaten or Khu-N-Aten), king of Egypt, 3-816

Picture, portrait, 3-816

Amenophis III, king of Egypt, overcame

Euphrates valley, 2-654

Picture, statue (gravure), 11-3878

America, early inhabitants, 19-7133-34

origin of name, 1-89, 242; 8-2980

population, 5-1606

See also Central America; North America; South America; also names of countries

America, patriotic song of the United States, 18-6513

America Islands, coconuts chief product of, 9-3300

American Academy of Arts and Letters. This organization numbers fifty members elected from the membership of the National Institute of Arts and Letters, to which the qualification for entrance is "a notable achievement in art, music or literature." The first seven members of the American Academy of Arts and Letters were elected by ballot in 1904.

American blight, see Aphids—woolly

American Federation of Labor. A non-secret confederation of trade unions on the North American continent. Its object is to work for the improvement in the conditions and wages of labor. Founded in 1881, it now has a membership of 3,500,000 in its four departments, Building Trades, Metal Trades, Railroad Employees, and Union Label Trades.

American League, in baseball, 17-6141

American Legion, The. An organization composed of men and women who served honorably in the armed forces of the United States in the World War. It was first organized in Paris, France, in 1919, and now it has over 11,000 branches called posts, with a membership of over 600,000. The national headquarters of the Legion are in the War Memorial Building, Indianapolis, Indiana.

American literature

history of American literature

* Colonial and Revolutionary time, 12-4445-50

* to the Civil War, 13-4625-33, 4725-30

* later 19th century, 13-4815-23

* recent American writers, 14-5007-16

See also American poetry and names of authors

American Museum of Natural History, New

York City, 18-6613-22

collection of precious stones, 19-7234

Pictures, 18-6613-22

American painting, see Painting, American

American poetry

* Song-writers of the U. S., 18-6509-15

See also American literature and Poetry Index

American Revolution, see Revolution, American

American sculpture, history, 14-4933-40

American Telephone and Telegraph Co., and

picture transmission by wire, 17-6056

American territory across the seas,

* 10-3583-96

Americans, use of name for residents of U. S., 10-3397

Amerinds, name for Indians, 1-160

Amethyst, account of, 19-7227

Picture (in color), facing 19-7225

Amherst, Jeffrey, Baron (1717-97). British

general, captured Montreal from French 1760. Commander-in-chief and governor-general in America, 1761.

Amicis, Edmondo de, author

Cuore, book, story from, 18-6482-84

Amiens. French cotton-manufacturing centre on the Somme. It has a noble cathedral, built in the 13th century, with a spire 426 feet high; other fine buildings are the town-hall and the Picardy museum. It was a battle centre during the World War. Amiens is an important railway centre.

cathedral, 17-6159

peace of, 6-2203

Pictures, cathedral (gravure), 17-6167, 6172

Ammonia. The popular name for the volatile alkali NH₃. It is a colorless gas, is soluble in water and has a pungent odor. It can be liquefied by pressure, and its density is about half that of air.

GENERAL INDEX

- Ammonia** (*continued*)
by-product in making coal-gas, 2-636
use in ice-making, 2-533-35
- Amœba**, *see* Ameba
- Among the snow-capped Alps**, * 17-6083-89
- Amoy**. Chinese port exporting sugar, camphor and paper.
- Ampelopsis**, plant, resembles poison ivy, 13-4782
- Ampère, André Marie**. French physicist and mathematician, born, Lyons, 1775; died, Marseilles, 1836. He won fame for his discoveries in electrodynamics.
discoveries in electricity, 16-5673
law of magnetism, 16-5797
- Amphalodes**
Picture, flower (gravure), 19-7175
- Amphibians**, class of vertebrates
* account of, 15-5453-58
definition of name, 1-256
first forms in Carboniferous period, 4-1296
in Devonian period, 4-1176
place in animal development, 1-258
- Amphisbænians**, lizards, 14-5232, 5234
- Amphitheatres**, Roman invention, 15-5348
Picture, Verona, Italy, 15-5341
- Amphitrite**, wife of Neptune, 9-3235
- Amplifier**, *see* Loud speaker
- Amritsar**, India
Picture, golden temple (gravure), 8-2833
- Amsterdam**, Holland, 15-5566
Pictures, 15-5563
- Amundsen, Captain Roald**. Norwegian explorer and scientist. Born, Borge, Smaalene, Norway, July 16, 1872. Studied medicine for two years. Scientific studies in Germany. Leader in Amundsen-Ellsworth-Nobile Trans-Polar Flight which crossed from Spitzbergen to Alaska in May, 1926. Amundsen and Oscar Wisting, the only two men to reach both Poles. *See* Norge.
disappearance in rescue attempt, 13-4723
expedition through Northwest Passage, 8-2988
expeditions, years 1919, 1922, 1925, 13-4722
mate on Belgica, 14-5091
North Pole, flight over, 1-170; 13-frontis., 4722
South Pole, discovery of, 14-5094, 5096
South Pole, reached with ski, 10-3696
Pictures
portrait, 8-2977; 14-5089
in antarctic regions, 14-5088
- Amur**. River of Siberia and Manchuria, rising in the Yablonovoi Mountains and flowing into the Sea of Okhotsk. Draining over 770,000 square miles, it is free from ice from May to November, and has considerable fisheries. 1,700 miles.
- Amusements**, *see* Games; Tricks
For list of main articles, *see* 20-7639-44
- Amyl nitrite**, relieves angina pectoris, 8-2730
- Anaconda**, Montana, copper mines and works, 9-3215
Pictures, Washoe reduction works, 9-3215
- Anacondas**, snakes, account of, 15-5412
Picture, 15-5411
- Anæsthesia**, discovery of anæsthetics, 8-2729-30
local, 8-2730
meaning of word, 8-2729
- Anæsthetics**, and diet, 8-2730
from coal-tar, 13-4532
history of discovery, 8-2729-30
value of, 8-2730
See also Ether, Sulphuric
- Anagrams**, game, ways to play, 18-6520, 6522
- Anamorphoses**, distorted drawings, 18-6644
- Anaphylaxis**, vaccine treatment, 15-5488
- Anarchism**. The doctrine of anarchists, who believe in the absence of government; a state of society in which there is no capable supreme power and in which the several functions of the state are performed badly or not at all, with the result that social and political confusion ensues.
- Anatolius, St.**, hymn-writer, 12-4435
- Anatomy**, *see* Skeleton
- Anaxagoras**. Greek philosopher; born, Clazomenæ, Asia Minor, about 500 B.C.; died, Lamp-sacus, Mysia, about 428.
teacher of Pericles, 2-706
- Anaximander**. Greek philosopher; born, Miletus, Asia Minor, about 611 B.C.; died, about 547 B.C.; maker of the first map of the world.
- Ancestor worship**, in China, 2-436
- Anchor** of a ship, 14-5003
Pictures, 14-5004
of battleship Maine, 17-6325
- Ancona**. Italian seaport on the Adriatic Sea, with a mole 2,000 feet long built by Trajan. There is also a triumphal arch of Trajan.
- Andalusia**, Spain, 14-5040
under Moorish rule, 14-5044
- Andaman Island**, penal settlement, 9-3184
- Andamanese**. A primitive race of the Oceanic Negro family which inhabits the Andaman Islands in the Indian Ocean.
- Andersen, Hans Christian**, Danish author, 19-7012
life and writings, 9-3194-96
Wind sings down the chimney (story), 5-1576
Pictures, portrait, 9-3193
portrait, with characters from stories, 9-3195
- Anderson, Alexander**, *see* Poetry Index for poem and note
- Anderson, Elbert**, and origin of "Uncle Sam," 9-3354
- Anderson, R. M.**, discoverer of blond Eskimos, 13-4222
- Andes Mts.**, South America, description, 19-6857
- Andorra**. Miniature republic in the Pyrenees; area, 175 square miles. It is under the joint suzerainty of France and Spain.
map, 14-5041
- André, John**, life, and execution as spy, 11-3996
Picture, receiving death sentence, 11-3997
- Andrea del Sarto**, *see* Sarto, Andrea del
- Andrée, Salomon August**, arctic explorer, 13-4716
Picture, portrait, 13-4707
- Andrew, St.**, of Crete, hymn-writer, 12-4435
- Androcles and the Lion** (story), 12-4488-89
- Andromeda**, constellation, nebula in, 11-4040
Picture, 1-21
- Andromeda**, plant
Picture, marsh andromeda (in color), 16-5882
- Andronicus, Livius**, early Roman author, 16-5908
- Andros, Sir Edmund**, colonial governor, 2-555
- Anemone, Sea**, *see* Sea anemone
- Anemones**
cultivated varieties, 19-7170
star, *see* Star flower
western, description, 19-6930, 6933
wood anemone, or wind-flower, 17-6276
Picture, western anemone, 19-6933
- Angel-fish**, *see* Monkfish
- Angelica**, wild, description, 16-5734
Picture, and note, 16-5731
- Angelico, Fra. of Fiesole**, Italian painter
life, 13-4866, 4868
paintings, 2-698
Pictures
scenes in his life, 13-4863
The Nativity (gravure), 2-694
- Anger**, as an emotion, 12-4442
- Angers, Félicité**, French Canadian author, 15-5367
- Angers**. Old capital of Anjou, France, on the Maine. It has a 13th-century cathedral and castle, and some textile industries.
- Angina pectoris**, disease, relieved by amyl nitrite, 8-2730
- Angles**, Teutonic tribe, settlement in England, 4-1429
See also Anglo-Saxons
- Anglo-Persian Oil Company**, history, 13-4533-35
refinery, 13-4551
- Anglo-Saxon Chronicle**
begun by King Alfred, 1-299; 4-1434
ended in reign of Henry I, 5-1568
- Anglo-Saxon period**, English history, 4-1429-39
Pictures, 4-1433-37
- Anglo-Saxon room**, British Museum, relics in, 4-1430
- Anglo-Saxons**, common law originated with, 13-4811-12
See also Anglo-Saxon period
- Angola**, West Africa, 18-6814
- Angora**. Capital of Anatolia, trading in mohair. Here in 1402 Tamerlane defeated the Turks. In 1923 it became seat of Turkish Government.
Pictures, 13-4809
- Angora goats**, 4-1377-78
- Angoulême**. Old French city on the Charente, with wine and paper trades. It has a 12th-century Romanesque cathedral and remains of ancient fortifications.
- Anhinga**, bird, variety of darter, 11-3882
- Ani**, belongs to cuckoo family, 10-3501
- Aniline dyes**, 13-4531-32
- Animalcules**, in ocean, description, 15-5540

GENERAL INDEX

Animals

backboned, *see* Vertebrates
 brains of, series from simplest form, 8-2945-46
 carnivorous
 balanced by herb-eating, 2-493
 characteristics, and checks on increase, 2-493
 classes of
 mammals
 * Animals most like man (monkeys, etc.), 1-207-14
 * Animals that lay eggs, 7-2590-95
 * Animals that never were, 1-353-59
 * Bats and their friends, 1-315-20
 * Bears and their cousins, 3-865-73
 * Big cats and little cats, 2-493-502
 * Camels, 5-1595-1604
 * Cattle family, 4-1258-65
 * Friendly dogs, 2-710-18
 * Gnawers and burrowers (rodents), 3-1127-34
 * Horse family, 6-2011-20
 * Hyrax and the elephant, 6-2139-47
 * Kangaroos and their kin, 7-2501-10
 * Living fossils, the Edentates, 7-2393-2400
 * Pigs and hippopotamuses, 5-1717-25
 * Sea hunters (seals, walruses, etc.), 3-997-1004
 * Sheep and goats, 4-1369-78
 * Swift runners, 4-1441-48
 * Tapir and rhinoceros, 5-1825-31
 * Whales and their cousins, 6-2213-20
 * Wild dogs, 2-597-603
 vertebrates, main groups, 1-256
See also Amphibians, Reptiles, Birds, etc.
 coloring, protective, 5-1751
 curious beliefs about, 1-353, 355, 359
 distribution of, 2-587
 domestic, first taming by man, 4-1259-60
 food, forage plants, 7-2409-12
 drawings of, how to make, *see* Drawing—animals
 ears, movement of, to catch sound, 9-3306
 food comes from plants, 2-689
 games about
 “What is its name?” 8-2880
 “zoo-guess,” 5-1776
 history
 early forms, 1-92-97, 255
 vertebrates, development of, 1-255-59
 Cambrian period, 3-906
 Carboniferous period, 4-1295
 Cretaceous period, 5-1660
 Eocene period, 5-1784
 Jurassic period, 5-1545-47
 Miocene period, 5-1784
 Permian period, 4-1296
 Pliocene and Pleistocene periods, 6-1926-27
 prehistoric animals in American Museum, N. Y. city, 18-6617-18, 6620
 Silurian period, 3-1031-32
 Triassic period, 4-1402
See also Birds—development
 hot-blooded animals compared with cold-blooded, 1-52
 Intelligence
 chimpanzees, 1-208
 comparison, ability to learn tricks, 8-2716
 dogs, 2-712, 717
 elephants, 6-2140, 2142
 Kafir animal stories, 5-1582-83
 * legendary, 1-353-59
 length of life, 1-185
 low forms blend with low plant forms, 1-117-18
 prehistoric, *see* Animals—history
 resembling plants, 1-118
 sacred, in India, 8-2702
 sea, *see* Sea—animal life
 sense of smell great in lower forms, 11-3955
 shadow animals, how to make, 16-5769
 specialization in, 7-2393-2400
 teeth of, 6-1929-30
 training for tricks, 8-2715-16
 trespassing, law of, 14-4916
 weather foretold by, 10-3625
See also names of animals; as, Cattle, Deer, Dogs, Goats, Horses, Sheep, etc.
 For list of main articles, *see* 20-7602
Poem about
 Industry of Animals, by Thomas Miller, 17-6380
 Questions about
 Are all animals blind at birth? 18-6558

Animals—Questions about (continued)

Can any animal live for years without food? 2-457
 Do animals feel as much pain as we do? 6-2251
 Do animals have dreams as we do? 12-4398
 Do animals know when they are being treated kindly? 5-1810
 Do animals talk to one another? 3-978
 Do animals think? 18-6557
 How are animals made to perform? 8-2715
 How long do animals live? 1-185
 Which animals are the most intelligent? 8-2716
 Why can baby animals walk so soon? 17-6173
Pictures
 brains of, compared with man, 8-2943
 prehistoric forms, *see* illustrations in articles under Animals—history. All are illustrated
See also names of animals
 Animals most like men, * 1-207-14
 Animals that lay eggs, * 7-2591-95
 Animals that never were, * 1-353-59
 Animals with backbones, * 1-255-59
 Anise, plant, 8-2996
 Anjou. Old French province in the valley of the Loire. It gave a long line of Angevin kings to England, remaining English for the most part up to 1444. Its capital is Angers on the Maine.
 Ankle, bones of, 5-1677
 sprained, treatment for, 11-4082; 13-4848
 Annam. Formerly a Chinese possession in Indo-China, Annam was an independent state from 1428 to 1884, when it was occupied by the French; 39,753 square miles in extent, it produces rice, millet, silk and timber. The capital, Hué, is the chief port.
 Annapolis. A town in Nova Scotia. Name changed from Port Royal in honor of Queen Anne when Nicholson captured it from the French in 1710. It is the export town for the fruitful Annapolis Valley.
 Annapolis. Capital of the State of Maryland. It is located on the Severn River, two miles from Chesapeake Bay. Here is situated the United States Naval Academy.
See West Point and Annapolis
 * United States Naval Academy, 18-6703-10
Pictures, Naval Academy, 18-6707-09
 Anne, queen of England, reign of, 6-1981
 Anne of Geierstein, by Scott, note on, 11-4070
 Annexation. The act of adding, as a smaller thing to a greater; for instance, the annexation of Texas to the United States.
 Annie Laurie, story of song, 10-3609
 Anning, Mary, found fossil of ichthyosaurus, 5-1546, 1548
 Anno Domini, explanation, 4-1316
 Anoa, buffaloes of Celebes, 4-1264
 Anopheles, mosquito, 15-5488
 Anselm, St., archbishop of Canterbury, 8-2846
 Ant-bears, account of, 7-2400
Pictures, 7-2395, 2399
 Ant-eaters, account of, 7-2397
 banded, account of, 7-2509
Pictures, 7-2399
 Ant-eaters, Porcupine, echidnas, 7-2594-95
 Ant-eaters, Spiny, echidnas, 7-2594-95
 Ant-lions, description, 18-6730
 Ant-thrushes, name for broadbills, 9-3288
Picture (in color), 10-3623
 Antarctic regions
 map, 14-5091
 * South Pole men, 14-5089-5101
See also South Pole
Question about
 Are there flowering plants in the Antarctic? 17-6284
 * *Pictures*, 14-5088-5100
 Antarctica, continent round South Pole, 14-5089
 Antelopes, description, 4-1441, 1443-45
Pictures, 4-1445
 museum group, 18-6619
 Antenna, for radio, 17-6260, 6366, 6368
 Anthemius of Tralles, Greek architect, 16-5717
 Anther, part of flower, 2-506
Picture, 2-509
 Anthony of Padua, St. Great preacher who is said to have converted many sinners. Born, Lisbon, 1195; died, Padua, 1231.

GENERAL INDEX

- Anthony, Susan Brownell.** An American social reformer and a pioneer worker for woman suffrage, civil rights for women, and temperance. Born, South Adams, Mass., 1820; died, Rochester, N. Y., 1906.
- Anthracite coal,** see Coal—anthracite
- Antidote.** A counteracting power of any kind. It may be a medicine to counteract the effects of poison or disease; or it may be an influence which cures a mental outlook.
- Antietam, Battle of,** 7-2434
- Antigone,** legendary character, death of, 6-2008
tragedy by Sophocles, note on, 16-5752
- Antigua.** West Indian island, forming with Barbuda and Redonda a Leeward Island presidency; area, 103 square miles; capital, St. John. Discovered by Columbus in 1493, it was settled by the British in 1632, and exports sugar, cotton, pineapples and molasses.
- Antilles,** name for West Indies, 19-7097
- Antimony (Sb).** A metal, white with a bright lustre, which does not tarnish easily. It is a conductor of both heat and electricity. Stibnite is an important ore of this mineral. Antimony is used to make alloys and in medicine.
- Antoninus,** friend of Emperor Hadrian, 12-4470
Picture, statue, 12-4462
- Antioch, Syria,** siege of, in Crusades, 7-2586
- Antiochus IV, Epiphanes,** king of Syria, persecuted Jewish religion, 13-4584
- Antipater,** governor of Macedonia, 3-1082
- Antipodes,** meaning of, 17-6175
- Antirrhinum**
Picture, flower (gravure), 19-7179
- Antiseptics,** Lister's discoveries, 15-5483-85
- Antlers,** of deer, 4-1446
- Antofagasta,** Chile, contains nitrate deposits, 19-7038
taken from Bolivia by Chile, 19-7038
- Antonello da Messina,** Italian painter, 3-1104
introduced oil painting in Venice, 4-1460
Picture, portrait of himself, 3-1105
portrait (gravure), 3-1110
- Antonie, Wall of,** (Scotland), 5-1865
- Antoninus Pius (Titus Aurelius),** life and reign, 5-1865
Picture, statue of, 5-1865
- Antony, Mark (Marcus Antonius),** Roman statesman, life, 4-1368
mind of, 3-984
speech over Cæsar, by Shakespeare, 11-3929-30
suicide of, 5-1859
Picture, delivering funeral oration, 11-3929
- Antrim.** Most populous county of Northern Ireland, with an important linen industry. The chief towns are: Belfast, the capital; Larne, Lisburn and Carrickfergus; on the north coast is the Giant's Causeway, and in the west Lough Neagh. Area, 1,175 square miles.
- Ants**
* account of, 17-6349-58
and beetles, 18-6627
care for aphids, 17-6065
eject poison gas, 17-6357
fables about
Ant and the grasshopper, 1-58
Dove and the ant, 14-4946
honey-pot ants, 17-6354
how to study, 12-1264
insects living with ants, 17-6353
parasol ants, 17-6354
slave-raiders, 17-6356-57
white, see Termites
Pictures, 17-6351-57
Pictures (in color), facing 18-6721
- Antwerp, Belgium,** 15-5498
cathedral, 17-6161
Pictures, 15-5505
cathedral, 17-6155; (gravure), 17-6167
- Anubis,** a god of ancient Egypt, 3-812
- Anuradhapura,** India, ancient bo tree, 9-3262
- Anvils**
Question about
Why does a blacksmith's anvil have a tapered end? 14-5225
- Aorangi,** ship using Diesel engines, 17-6406, 6408
Picture, 17-6408
- Aorta,** largest artery, 4-1212
- Aosta.** Old city of Piedmont, Italy, in a beautiful valley below the Alps. It has well preserved Roman walls and remains of baths and an amphitheatre; its cathedral dates from the 14th century, and the church of Sant' Orso from the 5th century.
- Apelles,** painter, ancient Greece, 2-451
- Apennines.** Mountain range which traverses practically the whole length of Italy, being connected in the north with the Maritime Alps. Its highest peak in the peninsula is Monte Corno, 9,560 feet; but the range reappears in Sicily, where the huge Etna volcano rises to 10,870 feet. Vesuvius, 4,200 feet, is close to Naples.
- Apes,** account of, 1-207-08, 213
Pictures, (gravure), 1-209-10
- Aphelion,** greatest distance from sun, 9-3289
- Aphids,** plant-lice, 17-6077
corn-root, notes and pictures, 17-6065
destroyed by lacewing flies, 18-6730
life with ants, 17-6353
woolly aphid, life history, with pictures, 18-6720
Pictures, 17-6071, 6349; 18-6720
- Aphrodite (Venus),** goddess, 9-3227
Pictures, head of, 12-4329; (gravure), 12-4336
- Apocrypha,** writings of, 15-5464
- Apollo,** god, account of, 9-3227
and Admetus, 8-2703
and Cassandra, 8-3014
Pictures (gravure), 9-3230-31
- Apollo Belvedere,** statue, *Picture,* 12-4464
- Apoplexy.** The sudden loss of feeling and movement of the whole body, with the exception of respiration and circulation, caused usually by a hemorrhage of the brain. Sometimes it is due to blood-clots that interfere with the circulation of the blood either to or in the brain.
- Apostles.** Apostle means, literally, "one who is sent away on a mission." Christ used the word to designate twelve of his disciples sent forth to preach the gospel to the world. Afterward the word described other followers of Christ, for instance, Paul and Barnabas. In later days the word has been used to denote a person undertaking a special mission, for example, an apostle of freedom.
- Apoxymenus,** statue by Lysippus, 12-4332
Picture (gravure), 12-4335
- Appalachian Mts.,** 13-4518, 4520
formation of, 4-1401
- Appalachian region** of Canada, 1-106, 108
- Appendicitis.** The medical term for inflammation of the appendix, a narrow tube about three inches long attached to the large intestine. From its closed end and worm-like shape the appendix is called "vermiformis."
- Appian Way,** Roman road, catacombs in, 2-576
Question about
What is the Appian Way? 8-3016
Pictures
reconstruction of, 15-5340
(gravure), 4-1204
- Apple-tree borer,** life history, with pictures, 18-6726
- Appleby, John F.,** inventor, 19-7211
- Apples**
apple-picker, how to make, 19-6964
cultivation over wide range, 6-2064
Delicious apple, origin of, 11-4133
developed from crabapple, 4-1387
jelly, how to make, 1-130
Poems about
Discontented Apples, by F. E. Weatherly, 5-1888
Mine Host of the "Golden Apple," by Thomas Westwood, 7-2364
Questions about
Where does an apple come from? 11-3975
Where is there a monument to an apple? 11-4133
Pictures, 6-2063
cross section, 2-507
orchard in bloom, 8-2679
- Appiqué work,** how to do, 16-5891-92
- Appomattox Court House,** Lee's surrender, 7-2442
Picture, house where Grant met Lee, 7-2441
- Apprentice system,** account of, in shoemaking, 18-6442
- Apricots,** fruit
where grown, 6-2064
Picture, 6-2061
- April.** The fourth month of the year, containing thirty days. It was the second month of the Roman calendar. The name is supposed to come

GENERAL INDEX

April (continued)

from the Latin *aperire*, to open, alluding to the season when the buds and flowers open. April was sacred to Venus, and it has been suggested that perhaps the name was originally Aphrilis, from Aphrodite, the Greek name of Venus.

Apron, child's, how to make, 7-2649

Apse, 16-5715, 5720

Aquamarine, variety of beryl, 19-7227-28

Picture (in color), facing 19-7225

Aquarids, shower of meteors, 10-3672

Aquarii, Roman firemen, 9-3158

Aquarium, for goldfish, 3-1026-28

Aqueducts

Barton Aqueduct, England, 13-4792

New York water supply from, 14-5056-60

Roman, beauty of, 15-5346

Claudius' work, 5-1862

Pictures

ancient aqueducts in Smyrna, 13-4810

for N. Y. water supply, 14-5059

on Canadian Pacific Railway line, Alberta, 4-1229

Roman, 14-5049, 5190; (gravure), 15-5351

Aqueous humor, of eye, 10-3684

Aquinas, Thomas, St. Born near Aquino, Italy, about 1225; died near Terracina, 1274. A famous Italian philosopher and theologian. A member of the Dominican order, he taught at Cologne, Paris, Rome, etc. He has been called the "Father of Moral Philosophy."

Aquitania, ship. *Pictures*, 12-4425-26

Ara, cockatoo, account of, 10-3614

Arabia

* account of, 18-6672-76

cities, abandoned, 18-6675

conquered Persia, 3-918

government by sheiks, 18-6674

literature, *see* Arabian literature

map, 3-908

products, 18-6675

railroad, 18-6675

relations with Great Britain, 18-6674

See also Arabs

Pictures, various scenes, 18-6673

Arabian literature, 15-5463-64

camel songs, influence, 5-1596

Arabian Nights' Entertainments, book, origin, 15-5464

Arabis, flower, 19-7170

Arabs

African conquests, 9-2047; 18-6808

architecture, *see* Architecture, Saracenic

astronomical studies, mediæval, 1-202

butter, first made by, 1-373

* desert life, 18-6735-40

dwellings, 5-1657

food in desert, 18-6740

horses of, 6-2014

in Palestine, 18-6678

influence on European thought, 15-5463-64

influence on Venice, 4-1456

Mohammedanism excited to conquest, 9-3097-98

self-government movement, 18-6672, 6674

windows, decorated, 18-6743

Poem about

Arab's Farewell to his Steed, by Mrs. C. S. Norton, 2-608

Pictures

Arab's Farewell to his Steed, 2-604

scenes of daily life (gravure), 5-1601-03

school and workshop, 18-6741

Aracari, bird

Picture (in color), 10-3621

Arachnida, account of, 16-6011-20

Aragon. Once a powerful Spanish kingdom, including the old provinces of Catalonia and Valencia; the Balearic Islands; and Naples, Sicily, and Sardinia, in Italy.

See also 14-5040

Aral Lake. Inland sea in Turkestan, fed by the Amu Daria and Syr Daria rivers. Only slightly salt, it has an area of 26,233 square miles.

Aramaic language used by Jesus, 10-3474

Aran Islands. Three rugged islands lying across the entrance to Galway Bay in Ireland.

Ararat. Armenian mountain known to the Persians as Koh-i-Nuh, or the Mountain of Noah; 17,300 feet.

Araucanians, Indian tribe of South America, 19-6858

not conquered by Spaniards, 19-6862

Arawaks, tribe of Indians

exterminated by Spaniards in West Indies, 19-7097-98

in South America, civilization, 19-6858

Arbela, Battle of, 3-913

Picture, 3-1077

Arbitration

Question about

Why cannot two people decide disputes? 6-2250

Arblay, Madame d', *see* Burney, Fanny

Arbor Day, observance of, 6-2093-94

Pictures, 6-2089

Arbutus, plant, account of, 13-4775, 4779; 17-6274

Picture, 13-4779

Arc lamps, *see* Electric lamps

Arcades, by Milton, note on, 4-1236

Arcadia, written by Sir Philip Sidney, 4-1477

Arcady

Question about

What do the poets mean by Arcady? 15-5364

Arcagnolo, *see* Orcagna

Arcas, son of Jupiter, legend of, 6-1971

Arch of Titus, Rome, 4-1200

Picture (gravure), 4-1203

Arch of Triumph, *see* Arches, Triumphal

Archæopteryx, early type of bird, 1-94; 2-634; 5-1546; 8-2758

Archangel. Arctic port of Russia, on the White Sea. It has large fisheries, and trades in flax, oats, tar, linseed, furs, tallow and timber between June and October.

Archer, James, artist

Picture, The Passing of Arthur (gravure), 19-6947

Archer, John W., English artist, 2-445

Archer fish. *Picture*, 16-5897

Archermos, Greek sculptor, 11-3992

Arches

in architecture, 8-3009, 3012

in Babylonian architecture, 14-5209

in Gothic architecture, 16-5967-68

in Roman architecture, 15-5346

in Romanesque architecture, 16-5719

in Saracenic architecture, 15-5466

Arches, Triumphal

in London, 8-3012; 9-3356; 15-5347

in New York, 8-3012; 9-3356; 17-6214

in Paris, 8-3012; 9-3356

of the Romans, 8-3012; 15-5347

Question about

What was the origin of the Arch of Triumph? 9-3356

Pictures

in New York, 17-6211

in Paris (gravure), 11-3827

of the Romans, 8-3010; 14-4920; (gravure), 1-72; 4-1203, 1205; 15-5356

Archimedes, Greek mathematician

story of saying "Eureka," 11-3842-43

studied area of circle, 3-1113

Picture, studying circle, 3-1113

Archimedes, screw-propelled vessel, 17-6404

Architecture

Baroque, or rococo style, 17-6310

church, *see* Church architecture

history

* in ancient nations, 14-5207-12

evolution from Greek to Gothic, 16-5967

* in Christian era, early styles, 16-5715-25

national characteristics shown by, 14-5207

orders, or classes, 15-5342

Composite order, 15-5347

Doric order, 15-5343

Ionic order, 15-5344

Tuscan order, 15-5347

proportion in, 15-5341-42

skyscrapers, 18-6555

Question about

What were the first buildings like? 8-3009-12

See also following entries for countries or styles; as, Architecture, American

Pictures

* development from early times, 8-3010-11

in Portugal, 14-5189-91

Irish ruins, 8-2947

set-back construction (gravure), 8-frontis.

various countries and periods (gravure) 1-72

See also all articles on Architecture and many

in All Countries

Architecture, American

* Architecture in the U. S., 18-6679-90

GENERAL INDEX

Architecture, American (continued)

- domestic, 18-6680-81, 6690
- influences from parent lands, 18-6679
- modern forms, 18-6684, 6689
- Spanish influence in the Southwest, 18-6425-26
- steel-frame buildings cause of new style, 18-6690
- Pictures*, old colonial houses, 12-4153-54
- Pictures*, (graveure), 18-6685-88
- Architecture, Assyrian**, 14-5208-09
- palace construction, 2-655
- Pictures*, 2-646, 649; 8-3010; 14-5207; (in color), 1-296
- Architecture, Babylonian**, 14-5208-09
- Pictures*, 2-646, 649, 659; (graveure), 7-2608
- Architecture, Belgian**, 15-5500-02; 17-6161-62
- Renaissance influence, 18-6500
- Pictures*, 15-5495, 5499, 5503-06; (graveure), 17-6166
- See also* Cathedrals
- Architecture, Byzantine**, 16-5716-19
- Pictures*, 8-3010; 13-4804-05, 4807, 4809-10; 16-5714; (graveure), 16-5721-22; 17-6301
- Architecture, Chinese**, 15-5472
- construction of houses, 5-1657-58
- Pictures*, 9-3094-95; (graveure), 15-5479
- Architecture, Domestic**
- English, development of, 18-6489-90
- in United States, 18-6680-81, 6690
- Architecture, Egyptian**, 14-5210-12
- use of arch, 8-3009
- Pictures*, ancient (graveure), 14-5213-16
- Architecture, English**
- classic revival, 19th century, 18-6491-92
- domestic architecture, development of, 18-6489-90
- * history, 12-4353; 16-5963-72; 18-6489-92
- Norman influence, 5-1565-66
- See also* Cathedrals
- Pictures*, 18-6488-89, 6493
- drawings by William Twopeny, 2-444-45
- Gothic, 16-5963, 5965; (graveure), 16-5973-76
- in London, 12-4352-53, 4355, 4357, 4359
- of the past (graveure), 7-2303-04
- Saxon, in England, 4-1437
- various styles, 8-3011
- Architecture, Etruscan**, influence on Rome, 15-5346
- Architecture, Flemish**, *see* Architecture, Belgian
- Architecture, French**
- castles, or châteaux, 18-6492, 6494-95
- Churches, 16-5720, 5725
- Renaissance influence, 18-6496, 6498
- classic revival, 18-6498
- * history, 18-6492-98
- hotels, 18-6494-95
- municipal buildings, 18-6495
- walled towns, 18-6494
- Pictures*, 10-3574-76
- scenes in Paris (graveure) 11-3825-28
- See also* Castles, Cathedrals and articles above
- Architecture, German**
- churches, 17-6160-61
- churches, Romanesque, 16-5725
- Renaissance influence, 18-6498, 6500
- See also* Cathedrals
- Pictures*, 12-4160-61; (graveure), 12-4173-80
- See also* Castles, Cathedrals and articles above
- Architecture, Gothic**
- compared with Renaissance, 17-6300
- * in England, 16-5969-72
- on the continent of Europe, 17-6155-62
- in United States, 18-6689
- * spirit and characteristics, 16-5967-69
- See also* Cathedrals; Church architecture
- Pictures*, 8-3011
- See also* articles above
- Architecture, Greek**, 14-5212
- arch not used, 8-3009
- * Greek and Roman builders, 15-5341-46
- Pictures*, 2-705; 3-1068, 1075, 1079; 8-3010; 15-5340; (graveure), 15-5349-52
- Architecture, Indian, or Hindu**, 15-5468, 5470-72
- Saracenic influence, 15-5471
- Pictures* (graveure), 8-2829-35; 15-5477-80
- temples (graveure) 9-3093-96
- Architecture, Italian**
- churches, 17-6162-64
- churches, Romanesque, 16-5725
- in Florence, 5-1735-40
- Venetian, 4-1456, 1458-59
- See also* Cathedrals; Architecture, Renaissance

Architecture, Italian (continued)

- Pictures*
- * great buildings of Italy (graveure) 17-6301-08
- in modern cities, 13-4567, 4573
- See also* articles above
- Architecture, Japanese**, 15-5472
- construction of houses, 5-1657-58
- Pictures*, 2-567, 569
- Architecture, Norman**, in England, 16-5963-67
- influence on England, 5-1565-66
- Pictures*, 5-1567; 8-3010; (graveure), 16-5974-77
- Architecture, Pelasgic**, 14-5212
- Pictures*
- Gates of Lions, Mycenæ, 8-3010; 11-3991
- Throne room, Knossos, 14-5215
- Treasury of Atreus, 14-5215
- Architecture, Persian**, 14-5209-10
- Pictures*, 3-909-21; 14-5206
- Architecture, Renaissance**
- compared with Gothic, 17-6300
- in England, 18-6490-91
- in France, 18-6495-98
- in Germany, Holland, and Belgium, 18-6498, 6500
- in Italy, 17-6297-6311
- in Spain, 18-6500, 6502
- Pictures*, 8-3011
- See also* articles above
- Architecture, Roman**, 8-3009, 3012
- * account of, 15-5346-48
- Pictures*
- in southern Europe, 15-5340-41; (graveure) 4-1202-07; 15-5351, 5353, 5355-56
- Pantheon, Rome, 4-1197
- Roman remains, in England, 4-1318-19, 1323-24
- styles and structures, 8-3010
- Architecture, Romanesque**, 16-5719-25
- in churches, 2-581
- Pictures*, 8-3010; (graveure), 16-5721-24
- Architecture, Saracenic**, 15-5465-68
- in India, 15-5471-72
- in Spain, Moorish, 15-5466-68
- Pictures*, 15-5465, 5467, 5469; (graveure), 15-5472-77
- Architecture, Spanish**
- churches, 17-6164
- classical and Italian influence, 18-6500, 6502
- Moorish type, *see* Architecture, Saracenic
- See also* Cathedrals
- Pictures*, 14-5045, 5047, 5049; (graveure), 15-5473-77
- in Southwestern U. S., 18-6427
- Arcola**, Battle of, note, with picture, 6-2198
- Arctot**, India, capture by Clive, 8-2826
- Arctic fox**, 2-602
- Arctic regions**
- archipelago, 1-114
- climate formerly warmer, 8-2989
- explorations
- Frchisher, 14-4960
- Henry Hudson, 14-4971
- * history of, 8-2977-89
- * North Pole men, 13-4707-23
- value of, 8-2989
- islands, ownership of, 13-4722
- maps, 13-4713, 1723
- vegetation of, 8-2668
- See also* Antarctic regions; North Pole
- Pictures*, connected with explorations, 8-2977 2979-89; 13-4707-23
- Arden**, Wooded district in Warwickshire, England, the remains of the Forest of Arden of Shakespeare's *As You Like It*.
- Ardennes**, highlands of Belgium, 15-5496
- Ardmore**, Ireland
- Pictures*, Round Tower, 8-2942
- Areopagitica**, by Milton, account of, 4-1238
- Arequipa**, astronomical observatory in the Andes, 1-288
- Ares (Mars)**, god, 9-3227
- Arethusa**, nymph, in mythology, 9-3236
- Arethusa**, orchid, description, 18-6567
- Argali**, wild sheep, 4-1375
- Pictures*, 4-1372
- Argall, Samuel**, expedition against Acadia, 2-682
- Argand**, Aimé, invented lamp, 3-996
- Argentine**, Second largest South American republic; area, 1,150,000 square miles. Capital, Buenos Aires. Famous as one of the world's chief granaries. Linseed and frozen meat are

GENERAL INDEX

Argentine (continued)

important exports. Cattle and sheep are numbered by the million. The chief towns are: Rosario, Cordoba, Tucuman, La Plata, Santa Fé, Mendoza and Bahia Blanca. Immigration, chiefly from Spain and Italy, is rapidly increasing the population.

description, 19-7034, 7036

history, 19-7033

racas in, 19-7036

Pictures, 19-7035, 7037, 7044-45

Argo, Jason's ship, 3-1100-01; 11-3912

Argon, element, in electric lamps, 16-5939

Argonaut, or **paper nautilus**, description,

19-6892

Pictures, 19-6882

shells, 19-6886

Argonauts. A band of legendary Greek heroes, led by Jason, who soon after the Trojan War sailed in the ship *Argo* to Colchis in search of the Golden Fleece. Aided by Medea, a dark witch-maiden, they killed the dragon guarding the fleece. Among the heroes on that wonderful voyage were Hercules, Castor and Pollux, Butes, Peleus and Orpheus.

Argonne. Wooded range of hills in northeast France, west of the Meuse. Famous for its position in the war area during the World War.

Argus, builder of *Argo*, 11-3912

Argus, dog of Odysseus, 1-146

Argyllshire, river in Scotland, harnessed,

15-5435

Ari Thorgilsson, early Scandinavian writer,

19-7010

Arica. Port of northern Chile, the terminus of a railway from La Paz, Bolivia. It exports copper, gold, silver, iron, sulphur, salt, guano and borax.

Ariel, sprite in *The Tempest*, 3-986

Arl, name for mace, 8-2994

Ariosto, Ludovico, Italian author, 17-6154

Picture, portrait, 17-6149

Aristæus, in mythology, 9-3236

Aristides the Just, Greek general

anecdote about, with picture, 3-1077

character and struggle with Themistocles,

2-704, 706

Pictures, portrait, 2-701; in group, 2-703

Aristophanes, Greek dramatist, 16-5753

Picture, portrait, 16-5747

Aristotle, Greek philosopher

and electricity, 16-5665

* life and influence, 16-5918-20

method of study, and influence, 2-708

teacher of Alexander, 2-707

teaching on falling bodies disproved by

Galileo, 1-280

Picture, 16-5914

Arithmetic

Question about, Why do we count in tens?

12-4397

See also Games, Educational—numbers to teach;

Problems

For list of helps in learning, see 20-7646

Arizona. Southwestern state; area, 113,956 square miles; capital and largest city, Phoenix. Rainfall is generally slight, and there are large desert areas, but irrigation from the Colorado River has brought prosperity to large districts. Cotton, wheat, corn, etc., are thriving crops. Minerals, especially copper, gold, rock-salt and lead, abound. Here is the Grand Canyon of the Colorado. Abbreviation, *Ariz.* Nickname, "Baby State," "Sunset State," or "Apache State." State flower, cactus. Motto, "Ditat Deus" (God enriches). "Arizona" comes from an Indian word meaning "few springs." First settlement, Yuma, 1854.

described in Western States, 18-6425-36;

19-6841-50

* desert regions, 9-3025-32

petrified forest, 9-3026, 3028

made a state, 11-3949

once part of Mexico, 6-1920

Pictures

cactuses, 9-3264

desert, 9-3025, 3027, 3032

flag (in color), 19-7191

Indian village, and mission, 18-6427

Roosevelt dam, 7-2552

University of, 12-4314

Arizona, University of

Picture, Agricultural building, 12-4314

Arkansas. Cotton state on the Mississippi's right bank; area, 53,335 square miles; capital and largest city, Little Rock. After cotton, lumber and timber products are most important with coal, petroleum, lead and manganese mining next. Abbreviation, *Ark.* Nickname, "Bear State." State flower, apple blossom. Motto, "Regnat populus" (The people rule). Arkansas was the name of an Indian tribe living in the state. First settlement, Little Rock, 1690.

described in Southern States, 13-4517-28;

14-4889-4900

made a state, 6-1916; 11-3939

seceded (May 6, 1861), 7-2432

Pictures

Capitol at Little Rock, 14-4897

flag (in color), 19-7190

Hot Springs and the Ozarks, 14-4895

Arkansas River. American river, rising in Rocky Mountains, Colorado. Flows into Mississippi River. Cuts through granite, making the beautiful Royal Gorge, nearly 9 miles long and 3,000 feet deep. 2,000 miles.

Picture, canyon of, Colorado, 18-6431

Arkwright, Sir Richard, inventor of spinning

machinery, 19-7202-03

Aries. Ancient city of Provence, France, having been important in Roman times and earlier. Its Roman remains include the palace of Constantine, an aqueduct, baths, and an immense amphitheatre for 25,000 spectators. The Romanesque church of St. Trophime is very fine.

Picture, Roman ruins (gravure), 15-5355-56

Arlington, Va., Robert E. Lee's home, note and

picture, 14-4893

Arlington National Cemetery

Pictures, 5-1541

Arm, see *Arms*

Armada, Spanish, defeat by English, 5-1820;

14-5044, 5046

ships too heavy, 11-3916, 3918

Poem about

Armada, by T. B. Macaulay, 14-5127

Picture, 5-1819

Armadillos, account of, 7-2398

Pictures, 7-2393, 2399

Armagh. County of Northern Ireland, manufac-

turing linen; area, 512 square miles; capital,

Armagh.

Armature on magnet, 10-3581

modern dynamo, 16-5674

Armenia. Russian dependency in the Caucasus, under Soviet government; area, 15,000 square miles; capital, Erivan. Ancient Armenia, which comprised parts of Turkey and Persia, existed as a kingdom from at least 600 B.C.; the Armenian Church is the oldest Christian church, having been founded about A.D. 300.

map, 13-4808

song, Hymn to Liberty, by Nalbandian,

17-6253

Armenians. An Alpine race with some Semitic characteristics. This race is of quick intelligence, and its home is in the mountainous country round Mount Ararat in east Asia Minor.

Arminius. German chieftain and hero; born, 17 B.C.; died, A.D. 21; liberated Germany from the Romans under Varus.

Armistice. Mutual agreement by two belligerents to suspend warlike operations for a stated time. It frequently precedes peace negotiations, as in November, 1918.

Armistice Day, holiday, 6-2094

Arms, bones of, 5-1676

exercises for, 15-5332

Question about

Why do we swing our arms when we walk?

5-1808

Pictures, diagrams showing action of biceps,

5-1805

Arms, Coats of, 1-186

Armstrong, E. H., and radio inventions, 17-6248,

6368

Army, U. S., see *United States—army*

Army worm, account of, 17-6419

Arne, Thomas, wrote music of *Rule, Britannia*,

10-3606

Arnica, plant, 8-2913; 18-6666

Arno. River of Tuscany which passes Arezzo, Florence, Empoli and Pisa, flowing from the Apennines into the Ligurian Sea.

Arnold, Benedict (1741-1801). American general and traitor. He did brilliant service at Ti-

GENERAL INDEX

Arnold, Benedict (*continued*)

conderoga, Quebec and Saratoga, where he was severely wounded. After failure to betray West Point entered British army and afterwards lived in London.

attack on Quebec, 1775-76, 3-942; 4-1164
attempted betrayal of West Point, 11-3996

Arnold, Sir Edwin, poetry of, 12-4232

See also Poetry Index for poem and note

Arnold, Matthew, poetry of, 12-4230-31

See also Poetry Index, for poems and notes

Picture, portrait, with father, 15-5619

Arnold, Samuel J., song-writer, 10-3608

Arnold von Winkelried, Swiss hero, 16-6004

Arnolfo di Cambio, Italian architect, 17-6162

buildings in Florence, 5-1736

Arnolfo di Lapo, *see* Arnolfo di Cambio

Arouet, François Marie, *see* Voltaire

Arpád, Magyar leader, 17-6339

Arras. Ancient capital of Artois, France, once famous for its tapestry. It suffered severely during the World War, its fine cathedral and town hall being ruined.

Arrest. In the eyes of the law to arrest means to take into custody, or to seize by virtue of a legal warrant.

Arrhenius Svante, Swedish scientist, 13-4538

Arrowhead, plant, description, 16-5870, 5872

Picture, 16-5870

Arrowrock dam, Idaho, 7-2546

Picture, 7-2552

Arrowroot, plant

Picture (in color), 8-2998

Arrows, *see* Bow and Arrow

Arsenic (As). Found sometimes in a native state, but usually in combination with oxygen, sulphur and other elements. Realgar, orpiment and arseno-pyrite, or mispickel, are the chief minerals from which the arsenic of commerce is obtained. Arsenic is used in medicines, as a pigment in making paint, in making Paris green.

Arson. The setting on fire purposely of any building or property with the intention of willfully causing destruction. In the eyes of the law arson is a crime.

Art

* Rich treasure that is ours, 1-61-64

appreciation of, 1-64

classical, influence on modern French art,

6-2077-80

expresses what is universal, 14-5079

form of self-expression, 1-63-64

history

* of cave-men, 1-189-96

in Bronze Age, 1-289-90

* early Christian art, 2-575-82

inspired by emotion, 1-62

terror unsuitable subject, 12-4460

test of best art, 1-61-62

See also Architecture; Painting; Sculpture;

Renaissance art

Art, Assyrian, 1-292, 297; 11-3875-76

Picture, interior of palace (in color), 1-296

See also Architecture, Assyrian; Sculpture,

Assyrian

Art, Babylonian, 1-292, 297; 11-3875-76

See also Architecture, Babylonian

Art, Classical, art of the ancient Greeks and

Romans, 2-449-53; 11-3987-94; 12-4215-22,

4327-36, 4459-70

See also Architecture, Greek and Roman

Art, Decorative, *see* Design

Art, Egyptian, 11-3874-75

based on religion, 1-290

* characteristics, 1-290-92

See also Architecture, Egyptian; Sculpture,

Egyptian

Pictures, ancient pictures (in color), 1-293-95

See also Architecture, Egyptian; Sculpture,

Egyptian

Art, Greek, 2-449-54

influence on Christian art, 2-575, 580

See also Architecture, Greek; Sculpture, Greek

Art, Persian, 1-297

influence on Christian art, 2-575-76

See also Architecture, Persian; Sculpture,

Persian

Art, Renaissance, *see* Renaissance Art

Art, Syrian, influence on Christian art, 2-575, 580

Artaxerxes III, king of Persia, 3-916

Artemis (Diana), goddess, 9-3227

Picture, statue, 12-4464

Artemisia, built tomb of Mausolus, 7-2604

Artemisium, naval battle at, 3-1078

Arteries

* Bones and arteries of our body, 13-4618-19

carry blood from heart, 4-1209

structure of, 4-1213

wounded, treatment for, 15-5599-5600

See also Blood—circulation

Pictures, 7-2550; 13-4619

Artesian wells, reason for, 6-2249

Arthur, King

legend of grave, Richmond Hill, 17-6324

Round Table, stories of

* five stories, 19-6941-53

Geraint and Enid, 17-6320-23

Lily maid of Astolat, 16-5823

Sir Tristram of Lyonesse, 7-2460-61

Pictures about Round Table stories (gravure),

19-6945-48

Arthur, Chester Alan, president of U. S., 8-2670

administration, 11-3943

life, outline of, 11-3953

Picture, portrait (gravure), 11-3946

Arthur's Chariot, name for constellation Great

Bear, 6-1971

Artichokes, Jerusalem, *see* Jerusalem artichokes

Articles of Confederation, American Revolution,

adoption, and terms of, 5-1696-97

Artists of the old empires, * 1-289-97

Arum, plant, growing in the house, 7-2516

wild, *see* Cuckoo-pint

Arundel, Earl of, Thomas Howard

Picture, portrait by Van Dyck, 5-1584

Aryans, conquest of India, 8-2821

languages, Hindu and European, 15-5461

"As the crow flies," meaning of expression,

7-2486

As You Like It, by Shakespeare, 3-838

Pictures, 3-839

Asafetida, gum, account of, 8-2911

Asbestos. A fibrous mineral, usually of serpentine, but sometimes of tremolite composition. It will not burn and is a poor conductor of heat, so it is of commercial value as a fireproof material. The province of Quebec, Canada, provides the greater part of the world's supply.

mines in Quebec, 1-108

Ascension Island, account of, 9-3188, 3190

Aseptic treatment, discovery of by Lister,

15-5484

Ash trees, account of, 12-4247-48, 4258

Indians made canoes from, 12-4510

See also Mountain ash

Pictures, 12-4258, 4509

fruit (in color), 11-4027

Ashanti. British West African district, since 1901 under the Gold Coast. Gold, rubber, cocoa, palm-oil, tobacco and mahogany are produced.

account of, 9-3056

Ashburton Treaty, 1842. The treaty which settled the vexed question of the international boundary between Maine and Canada.

Ashby-de-la-Zouch. Leicestershire town, England, containing ruins of the castle made famous by Scott's *Ivanhoe*. Here Mary Queen of Scots was imprisoned.

Ashley, Lord, *see* Shaftesbury, 1st earl of

(Anthony Ashley Cooper)

Ashokan dam, account of, 14-5055-56

Ashokan reservoir, note and picture, 14-5057

Ashur-bani-pal, king of Assyria, library of,

18-6672

life and reign, 2-656-58

Pictures, portraits (bas-relief), 2-647, 657

Ashur-nazir-pal, king of Assyria, 2-654

Picture, portrait (statue), 2-657

Asia. Largest of the continents, having an area of 17,206,000 square miles, or about one-third of the world's land surface. Geographically the most important feature of Asia is the lofty Pamir Plateau, from which radiate stupendous mountain ranges exceeding even the Andes in height. These include the Himalayan, Karakoram, Hindu Kush and Kwen Lun ranges. A vast area of the continent consists of lofty and sparsely populated tablelands, chief of which is the great plateau of Tibet, 10,000 to 17,000 feet high. On the other hand, the mountains give rise to a remarkable number of great rivers, and these have some of the most fertile and populous basins in the world. The population in the valleys of the Ganges and the Yang-tse-kiang is in many places denser even than in the in-

GENERAL INDEX

Asia (continued)

dustrial districts of Europe. The vast plains of Siberia, however, are generally too cold to support a large population. Asia possesses a greater number of important islands than any other continent, notably the East Indies, the Japanese Empire, the Philippines, Cyprus and Ceylon. The agricultural wealth especially of China, India and the East Indies is enormous. Mineral wealth is exceedingly great and widespread. China has great stretches of coal-beds. The people of Asia may be divided into three main groups: the Caucasian in western Asia and India; the Mongolian in central and eastern Asia; and the Malay in the extreme southeast and in the East Indies. In addition, there are Dravida in southeast India and some Negrito tribes in the eastern archipelago, besides large numbers of Europeans in Siberia. Over half the population hold the Buddhist religion, or religions akin to it; there are over 100 million Mohammedans, and, in India, over 220 million Hindus.

* Arab Asia, 18-6669

* central Asia, description, 18-6583-92

maps, central Asia, 18-6586

southeastern Asia, 3-908

mountains, 18-6584

population, 5-1606

water power, 15-5430

See also names of cities and countries in Asia

For list of main articles, see 20-7597

Asia Minor. Westernmost peninsula of Asia, forming part of the Turkish Empire. Though generally mountainous a great part of the country is exceedingly fertile, producing large quantities of cereals, fruit, cotton and tobacco. Smyrna, Broussa, Angora, Konia (Iconium) and Trebizond are the chief towns. Practically co-incident with Anatolia.

Asir, Arabia, 18-6675-76

Asoka, Indian ruler, 8-2822

Asp, snake, 15-5414

Asparagus, account of, 7-2616

Picture, 7-2620

Aspidin, Joseph, discovered Portland cement,

7-2305

Aspen trees

Question about

Why do the leaves of the aspen tree always

shake? 15-5366

Picture, 12-4507

Aspersit, flower

Picture (in color), 14-4985

Asphalt. A bituminous material used for floorings, pavements and roofs. The natural substance is asphaltum, which is widely distributed over the earth. The island of Trinidad has a lake of boiling pitch, or asphaltum. Artificial asphalt is made of refuse tar, slaked lime and gravel.

Asquith, Herbert Henry (Earl of Oxford and Asquith). English statesman. Prime minister of Great Britain 1908-16. Born, Yorkshire, 1852. During his ministry the Lords were deprived of their power of veto, the Home Rule Bill was passed, and Great Britain entered the World War.

Assam. Northeastern Indian province; area, 53,000 square miles; capital, Shillong. The tea-gardens here have an area greater than those of all the rest of India, while the rainfall averages 100 inches annually.

Assembly. The name given to the lower house of the legislature in several of the states of the United States and in some of the British dominions and colonies.

Asses, account of, 6-2018-20

fables about, by AEsop

Ass and his driver, 4-1186

Jupiter and the ass, 6-1969

Two loaded asses, 1-58

See also Donkeys

Pictures, wild asses, 6-2017, 2019

Assessor. This term is applied usually to an officer who values, or *assesses*, property for the purpose of taxation. To carry on the government of a city or a township it is necessary to have money, and in most cases this money is raised by a tax on property. The assessor makes out a list of all property in his district and estimates its value; on his valuation the owner is taxed.

Assignment. A law term which means transferring, or making over, to another some real or personal property, or a right therein.

Assiniboia, district of Canada, 4-1490

Assisi, Italy, San Francesco, church, 17-6163

Picture, church of San Francesco (gravure), 17-6170

Associated Press. The largest and most powerful news collecting and distributing agency on the North American continent. It is made up of publishers of newspapers all over the continent who have banded together to exchange news. They have also reporters in important places all over the world to send news by cable or telegraph in to the head-office, where it is distributed to the newspapers that are members of the Association. The Associated Press does not admit all newspapers to membership, reserving the right to admit only a certain number in each city or district according to the population, and it does not sell its news service to non-members of the Association. The cost of maintaining the service is borne by all the members in proportion to the use made of it.

Association of ideas, laws of, 11-4068

Assouan Dam, Nile River, 7-2546; 18-6806

Pictures, 7-2553

Assyria

art, see Art, Assyrian

* history, 2-647-60; 18-6670-71

conquered Babylonia, 13th century B. C.,

2-654

founded as Babylonian colony, 2-652

invasion of Egypt, 3-820

overcome by Medes, 2-658-59

horses of, 6-2014

libraries, clay books, 2-656-58

literature, 2-656-58; 15-5462

musical instruments, 5-1795

name, meaning of, 2-652

newspapers, substitutes for, 7-2483

sculpture, see Sculpture, Assyrian

social conditions shown by architecture,

14-5209

writing, 10-3546

See also Architecture, Assyrian; Sculpture,

Assyrian

Pictures, 2-646-60

cylinder, used for book, 10-3545

interior of palace (in color), 1-296

Asteroids, or **planetoids.** The small planets,

numbering more than 465, which lie between the

orbits of the large planets Mars and Jupiter.

Asters

seaside varieties, 14-5162

Pictures (gravure)

garden flower, 19-7177

mammoth aster, 19-7180

ostrich plumed aster, 19-7179

Asters, Mountain, description, 18-6662

Astigmatism. A defect in the refracting apparatus of the eye so that rays of light entering the eye do not meet in a point upon the retina,

but meet in a line. This is due to the fact that the curvature of the cornea, and sometimes of the lens, is not normal.

Astor, John Jacob (1763-1848). Born in Waldorf, Germany. Emigrated in 1783 to New York, where he went into the fur trade. In 1810 founded the Pacific Fur Company, which explored and occupied Oregon "Territory."

Astragalus, bush, description, 9-3152

Astrakhan. Russian port near the entry of the Volga to the Caspian. A dirty semi-Oriental place, it is a centre of trade with the Near East, and has a cathedral and some 40 Greek churches. Its sturgeon fishery is famous.

Astringent. A medical substance which contracts the tissues of the body and checks or diminishes discharges of blood, mucus and other secretions. Mineral astringents are alum, lime-water, chalk, copper salts, etc.; and vegetable astringents are oak-bark, galls, kino and tannic acid.

Astrology. This meant originally "a knowledge of the stars," but that definition now applies to astronomy. The present-day use of the word astrology is restricted to the prediction of people's futures or of coming events from the position of the heavenly bodies. It was practiced among Eastern peoples in the earliest days.

Astronomers, see Astronomy—history

GENERAL INDEX

Astronomy

- * big ball we live on, 1-17-25
- * earth and moon, 10-3535-44
- * earth, how made, 1-141-44
- * history: discoveries of astronomers, 1-201-06;
279-88
- in ancient Babylonia, 15-5162
- legends about stars, 6-1970-71
- * nebulae, and solar systems, 11-4037-42
- planets
- * inner: Mercury, Venus, Mars, 9-3289-93
- * outer: Jupiter, Saturn, Uranus, Neptune,
10-3409-14
- * solar system, fragments of, 10-3665-72
- * stars, 11-3783-90; 11-3921-26
- * sun and solar system, 9-3171-80
- * three ways the earth moves, 1-235-39
- * universe, immensity of, 9-3033-40
- zodiac, explanation and diagram, 10-3730-31
- For list of main articles, see 20-7613-14

Astyages, king of Media, 3-912

Asuncion. Capital of Paraguay, on the Paraguay River. An important trading centre, it has a university and a cathedral.

Atacama, Desert of, products, 7-2421

Atahualpa, Inca sovereign, 19-6862

Athabasca, district of Canada, 4-1490

Athabasca Lake. Between provinces of Alberta and Saskatchewan, Canada. Area, 2,842 square miles, the fourth largest lake in Canada. The Canada goose breeds here in large numbers.

Athabasca River. Canadian river, rising in Lesser Slave Lake. Flows into Lake Athabasca, province of Alberta. 765 miles.

Athabascans, or **Athapascans**. One of the important linguistic stocks of the North American Indians, occupying the west-coast country from Alaska to northern Mexico. Among the tribes of this stock are the Chippewas, Navajos, Apaches, Hupas and Lipans.

Athanasian Creed and **Athanasius**, 13-4860

Athanasius, St., life of, 13-4859-60

Picture, portrait, 13-4859

Athena (**Pallas Athene**), goddess, account of, 9-3226

legend of founding of Athens, 3-1115

statue by Phidias, Parthenon, 12-4220-21

See also *Minerva*

Pictures, sculptures by Phidias, 3-1079; 12-4219

Athenæum. In ancient days this meant a temple or a place dedicated to the goddess Athene (or Minerva). The most famous was an institution at Rome founded by Hadrian. Nowadays the word is used to denote an institution for the encouragement of art and literature.

Athens, Greece

* great men of, 2-701-09

history

conquered by Philip of Macedon, 3-1082

conquered by Sparta, 3-1081

Delian League, leader of, 3-1080

in Persian Wars, 3-1076, 1078

legend of founding by Pallas Athene, goddess, 3-1115

national flower, violet, 17-6180

population, 14-4918

sculpture, see *Sculpture*, Greek

theatre of Dionysus, 15-5346

See also *Erechtheum*; *Parthenon*

Pictures

Acropolis, 2-705; 14-4927

general view, 14-4921

ruins of Arch of Hadrian, 14-4920

School of Athens, by Raphael, 2-700

Pictures (gravure), 15-5349-54

See also *Greece—Pictures*

Atkins, Tommy, explanation of, 7-2486

Atlanta. Capital and largest city of Georgia, trading chiefly in cotton and tobacco. One of the most important cities of the South, 1,000 feet above sea-level. An important Confederate centre in the Civil War.

taken by Sherman, Civil War, 7-2440

Picture, business section, 14-4898

Atlantic cable, see *Cables*, Submarine

Atlantic City, N. J., 12-4146

Picture, 12-4149

Atlantic-Gulf coastal plain, 13-4518

Atlantic Ocean

account of, 7-2539

depth of, 3-875

first crossing by aviators, 1-176-77

first crossing of steamships, 17-6402-04

Atlantic Ocean (continued)

map, showing cable lines, 12-4297

time sailing-ships crossed in, 11-3919-20

See also *Cables*, Submarine

Atlantides, in mythology, 9-3237

Atlantis, lost continent, 5-1659; 8-2718

Atlas, book, game to play with, 9-3375

Atlas, giant in mythology, 9-3237

Atlas Mts. African range extending for 1,500 miles through Morocco, Algeria and Tunis. Its chief division is the Great Atlas, which contains the peak of Tagharat, 15,000 feet.

See also 18-6810

Atmosphere, see *Air*

Atmospheric pressure

* account of, 15-5285-89

affects boiling-point, 12-4277

and siphons, 15-5365

experiments to show, 18-6784; 19-7083

first proved by Torricelli, 15-5286

measure of, 14-4952

Atoll, coral island, 9-3296

Picture, 6-2073

Atomic numbers of elements, 12-4292

Atoms

differences caused by inner arrangement,

12-4290-91

explanation of, 12-4157

formed of electrons and nucleus, 12-4289-90

made of protons and electrons, 12-4159

motion of, 12-4159

movement in, compared to solar system's,
16-5808

relation to specific heat, 16-5663

size of, 12-4158-59

spectra of, 16-5812

systems of electric particles, 12-4404

Atropine, drug, use of, 8-2912

Atropos, one of the three Fates, 9-3228

Attachment. In law this is the taking of a person, goods or estate by a writ in a civil action to secure a debt, to compel a person to appear in court or to punish him for contempt.

Attainder. A legal term. Until comparatively recently a person who was outlawed for a capital offense, or a person who was condemned to death for treason, lost all the rights of citizenship, including his real and personal property and also the right to inherit property or to pass it on to his heirs. England abolished this law in 1870. In the United States the Constitution states that "no attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted." By "corruption of blood" is meant the punishment of the children for the father's sin through loss of their inheritance.

Attalus I, king of Pergamum, and sculpture of Pergamum, 12-4460, 4467

Attic salt. Sparkling, refined wit. The people of Athens and Attica had a reputation for correct and brilliant use of language.

Attica, peninsula of Greece, 3-1074

Attila, leader of Huns, 11-3960

Attorney-general. The chief officer of the law. In the United States and Canada the holders of the office of attorney-general are members of the cabinets of their respective countries. Each state in the United States and each province in Canada has its attorney-general for state or provincial law. In England the attorney-general is the titular head of the Bar and is legal adviser to the Crown.

Auber, Harriet, hymn-writer, 12-4437

Auckland. Largest city and port of North Island, New Zealand, with a magnificent harbor. An important manufacturing centre, it has exports of butter, kauri gum, wool, gold and coal.

situation of, 7-2574

Picture, 7-2580

Auditives, people who think in sounds,

12-4182-83

Auditoriums, echoes in, 17-6316

Audubon, John James, American ornithologist

life and work, 19-7052

Picture, portrait, 19-7052

Audubon societies, for protection of birds,

14-5018

Augen stables, cleansing of, 9-3083

Aughrim, Battle of, 8-2934

Augsburg. Ancient Bavarian city once famous for the skill of its medieval craftsmen. It has an old cathedral and a splendid town hall.

GENERAL INDEX

August, so named from Emperor Augustus Cæsar in his own honor, following the example of Julius Cæsar who gave his name to the preceding month. Eighth month of the year, containing thirty-one days.

Augusta. Capital of the state of Maine. Important manufacturing city, with cotton, shoes and paper.

Augusta, Ga.

Picture, Broad St., 14-4898

Augustan Age, in Rome, 4-1199; 5-1860

Augustine, St., missionary to England, 2-475; 4-1430, 1432

sent by Pope Gregory, 8-2844

Picture, portrait (in group), 2-475

Augustine of Hippo, St. Son of St. Monica. Was born in North Africa and led a dissolute life till converted and baptized in 387. He became Bishop of Hippo about 395, and is famous for his religious writings and discussion with St. Jerome.

Augustus (Gaius Octavius), emperor of Rome, 4-1368

* life and work, 4-1199; 5-1859

Pictures, statues, 5-1860; 12-4463; (gravure), 1-71

Auks, birds

auk family, members of, 11-4124

great auk extinct, 1-94-95

varieties and description, 11-4126

Picture, razor-bill auk, 11-4125

Auld Lang Syne, song, origin of, 10-3610

Auld Robin Gray, song, origin of, 10-3607, 3609-10

Aulnoy, Comtesse d', French writer, 9-3194

Picture, portrait, 9-3193

Aunoy, Comtesse d', see Aulnoy, Comtesse d'

Auricle, chamber of heart, description, 4-1212

Auricula, flower, description, 19-7171

Aurocha, European bison, 4-1260

Picture (gravure), 4-1265

Aurora, goddess of the dawn, 9-3228, 3233

Aurora, ship in antarctic exploration, 14-5093, 5101

Picture, 14-5097

Aurora borealis (popularly called northern lights). A phenomenon of light seen in the northern skies only at night and probably due to magnetic action. It takes many forms, the most common being streamers of colored light—oftenest yellow—radiating in fan shape from a dusky centre slightly above the horizon. Sometimes wings or curtains of light flutter and wave across the heavens. The aurora of the southern hemisphere is called *aurora australis*.

explanation of, 16-5670

Picture, painting of, 10-3704

Aurora Leigh, by Mrs. E. B. Browning, criticism of, 10-3690

Aurungzebe, Indian ruler, reign of, 8-2824

Picture, portrait, 8-2821

Ausable Chasm, Adirondacks, *Picture*, 10-3405

Austen, Jane, English novelist, writings, 6-2257-58

Pictures

portrait, 6-2255

at work in her study, 6-2253

Auster, south wind, in mythology, 9-3234

Austerlitz, Battle of, 6-2204; 10-3571

Austin, Alfred, poet laureate, 12-4233

See also Poetry Index for poem and note

Austin, Stephen Fuller (1793-1836). An American pioneer and politician, known as the founder of the State of Texas.

Austin. Capital of the State of Texas. Progressive and growing city. Seat of the University of Texas. Exceptionally large and imposing Capitol building.

Australasia

length of voyage to, 7-2578

population, 5-1626

See also Australia; New Zealand; South Seas

Australia

* Australia, the great south land, 7-2463-72

animal life, 7-2472

exploration

early explorers, 7-2463-64

* Men who found Australia, 3-859-64

food resources before cultivation, 5-1623-24

fresh water in the sea, on coast, 2-584

government, Federation, 7-2470

industries, 7-2464-72

woolen industry, figures of, 4-1369

insect pests in agriculture, 18-6724

Australia (continued)

map, 7-2469

mines, 7-2466, 2468, 2470

gold, discovery of, and results, 7-2466

natives, 7-2463-64

plant life, 7-2472

railroads, 7-2468, 2470

settlement

colonization by prisoners, 3-861-62

first settlements, 7-2464, 2466

sheep-raising, 15-5576

size, 7-2463

states of, 7-2466, 2468, 2470

World War, number of men sent, 7-2300

Pictures, 3-859-64; 7-2462-73

growing and drying fruit, 6-2066-67

Murrumbidgee territory, irrigation, 7-2548-49

wool-production, 15-5578-84

Australian ballot. This is a system of voting or balloting to secure secrecy in marking and casting the voting-paper or ballot. The government prints and issues the ballots on which the names of all candidates are placed, and also provides for the arrangement and control of polling-places. This system was first used in Australia, but it has been adopted since by many other countries, especially by the United States and Canada.

Australian bear, or koala, 7-2504, 2509

Austria

* history, 17-6191-98

early growth, 11-3963

Napoleonic period, 6-2200-08; 11-3966, 3968

relations with Bohemia, 17-6192

relations with Hungary, 17-6194

separated from German confederation,

11-3970

since World War, 17-6196, 6198; 18-6460

Swiss struggle against Austria, 16-6002, 6004

under Maria Theresa, 11-3966

Italian possessions, 12-4410, 4412

map, 17-6197

oppression of Slavs, 18-6459

racess and languages, 17-6194, 6196

resources and industries, 17-6196, 6198

song, God preserve our noble Empror,

17-6251-52

territorial losses since World War, 17-6196;

18-6459-60

Pictures, 17-6190, 6193, 6195, 6198

Austrian Succession, War of, and Frederick the Great, 11-4048

Autographs

of signers of Declaration of Independence,

facsimiles, 20-7552

Automobiles

* How motor cars are made, 19-7015-28

cause demand for rubber, 4-1406

electric cars, 19-7029

engine, diagrams and explanation, 19-7030-31

invention of, 19-7015-16

principle of, 13-4540

parts, assembling of, in factory, 19-7017

casting of, 19-7016, 7018

chart of, 19-7026-27

radio installation on, 16-5977-78

steam-driven, 19-7029

tires, how made, note and pictures, 1-311

steel studs, 6-2123

testing, 1-313

Questions about

How does the speedometer of a motor car work? 1-75

What makes a motor car go? 19-7029-32

Why must automobiles have number plates attached? 10-3474

Pictures

as a fire patrol-speeder, 8-2807

factory scenes, 19-7018-23

modern car and one of 1899, 19-7015-16

with wheels that turn, trick, 19-6964

Autumn

Poems about

Autumn, by John Keats, 1-325

Autumn, by P. B. Shelley, 4-1515

Death of the Flowers, by W. C. Bryant,

18-6799

October, by J. M. Gibbon, 15-5422

Auvergne. Old province of central France, remarkable for its volcanic mountain plateau and ancient lava flows. The powerful Arvernians lived in this part of Gaul in ancient times, and fought hard against Julius Cæsar.

GENERAL INDEX



Avalanche. A mass of snow or ice sliding down from a mountain-slope. As a rule, avalanches are not dangerous to human life because they occur above the snow-line; but there have been terrible disasters caused by part of a mountain's breaking off, joining the snow or ice avalanche to form a "rocky avalanche" and burying an entire village.

Avebury. Village in England containing Avebury Circle, a double ring of huge stones believed to have been a Druidical temple.

Avens, plant
water avens, description, 16-5875-76, 5880

White Mountain, *see* Wood nymphs

Picture, water avens, 16-5875

Pictures (in color)

common avens or herb bennet, 14-4991

mountain avens, 15-5610

water avens, 16-5884

Averroës, Spanish-Arabian philosopher, 15-5461

Aviation

* Heroes of aviation, 17-6291-94

* Riders on the wind, 1-166-84

accidents, frequency of, 1-176

airplanes, invention and improvement,

1-170-74

champion records, 1-167, 180, 181, 183, 184

history, 1-167-84

in World War, 1-174-78

oceans, crossing of, 1-168, 170, 171, 176, 178-83

polar flights, 1-170, 181; 13-4722-23

problems of equilibrium, 14-5180

qualities needed in aviator, 1-174-76

recent long flights, 1-170, 180-84

record trip around world, 1924, 1-180

volplane, method of landing, 1-174

Poem about

Darius Green and his Flying-machine, by

J. T. Trowbridge, 13-6795

Pictures, 1-166-84

Avicenna, Arabian physician, 15-5464

Avignon, France, 11-3820

architecture, 18-6494

painting, early school of, 4-1227

Palace of the Popes, note, 10-3574

Pictures, Palace of the Popes, 10-3574; 18-6499

Avila. City of Spain, in the hills of Old Castile, 53 miles northwest of Madrid. Its strong high granite walls and 86 towers make it a remarkable island fortress.

Picture, 14-5049

Avocets, birds, 11-4012

Picture, 11-4011

Ax, tool, how to use, 1-232-33

fable about, by Æsop, 6-1969

Question about

Why is an ax-handle often curved? 8-3013

Axolotl, amphibious animal, 15-5458

Picture, 15-5457

Ayacucho. Cathedral city of Peru. Standing 9,000 feet above sea-level, it was founded by Pizarro in 1539.

Ayllon, Lucas Vasquez de. Born about 1475; died about 1526. A Spanish adventurer and colonizer who explored the Carolina coast in 1521.

Ayrshire, breed of cattle, description, 4-1262

Pictures (in color), facing 4-1259

Azalea, shrub, account of, 13-4776-77

Picture, 13-4777

Azara's dog, 2-602

Azerbaijan. Tartar soviet republic in the Caucasus, under Russian influence; area, 33,640 square miles; capital, Baku. The country has vast oil resources.

Azores. Group of volcanic islands in the North Atlantic, forming part of Portugal. Terceira, St. Michael's and Pico are the largest islands, and Angra, Horta and Ponta Delgada, the chief towns. Oranges, pineapples and bananas are exported. Area, 926 square miles.

Azov, Sea of. Gulf of the Black Sea, with which it communicates by the Strait of Yenikale. 14,500 square miles in extent, it contains the Russian ports of Mariupol, Berdiansk, Taganrog and Rostov. Its waters are brackish and teem with fish.

Aztecs, Indians of Mexico

at time of Cortes, 1-244

carving, note and picture, 1-163

civilization, 19-7134

conquest by Cortes, 19-7132-33

used cacao seeds as money, 7-2526

B. C., abbreviation, meaning of, 11-4131

Baalbek, Syria, 15-5348

Picture, Temple of Bacchus (gravure), 15-5356

Bab-el-Mandeb, Strait of. Strait dividing Africa and Arabia and connecting the Red Sea and the Indian Ocean. About 20 miles broad, it is divided into two channels by the island of Perim. The Arab words mean "Gate of Tears."

Babar, founder of Mogul Empire

conquest of India, 8-2822-24

Babblers, birds, account of, 9-3285

Picture, chestnut-back babbler (in color), 10-3621

Babcock, Alphens, made cast-iron frame for

piano, 5-1796

Babel, Tower of, Babylonian tradition, 2-659

site, with picture, 2-660

Baber, *see* Babar

Babes in the Wood, story of, 7-2341

Babies

brain, size of, 5-1673-74

Little Mothers' League, 15-5622

lungs of, 4-1329

milk, best food for, 7-2323-26

soft place in skull, 5-1675

Poems about

Baby, by George Macdonald, 2-486

Babyland, by George Cooper, 17-6379

Babyland, by Mrs. E. W. Wilcox, 16-5923

Only a Baby Small, by M. Barr, 5-1887

Teeny-Weeny, by Eugene Field, 11-4036

Weighing the Baby, by Ethel Lynn, 5-1780

Questions about

Why can baby animals walk so soon? 17-6173

Why do we forget what happened when we

were babies? 16-5740

Why must a baby have more sleep than a

grown-up? 2-687

Why must a baby learn to walk? 3-877

Picture, sleeping in open air, 4-1331

Babington Plot, against Queen Elizabeth, 12-4214

Babirusa, pig of Malaya, description, 5-1722

Picture, 5-1721

Baboons, 1-214

Pictures (gravure), 1-209, 212

Babur, *see* Babar

Babylon, city

conquered by Cyrus the Great, 3-912

hanging gardens, 2-659; 7-2604; 14-5209

Pictures

hanging gardens, 2-659; reconstruction of

(gravure), 7-2608

restoration of city, with notes, 2-646

ruins, 2-649

Babylonia, ancient nation

architecture, *see* Architecture, Babylonian

art, *see* Art, Babylonian

brickmaking, 2-652

* description and history, 2-647-60

honey, introduction of, 17-6221-22

literature and writings, 2-652, 654; 15-5462

newspapers, substitutes for, 7-2483

races of, 18-6670

writing, 10-3546

Pictures, 2-646-60

Baccaria, Italian scientist, 4-1250

Bacchanals, festivals of Bacchus, 9-3227

Baccharis, seaside plant, 14-5165

Bacchus (Dionysus), god, account of, 9-3227

Pictures

statue, with Hermes (gravure), 12-4335

statue, with Faun, 12-4465

Bach, Johann Sebastian, German musical com-

poser, life and work, 19-6916, 7071

Pictures, portrait, 19-6912

at the organ, 19-6919

morning hymn at his home, 19-7070

Bach, Karl Philipp Emanuel, composer, 19-6916

Bach, Wilhelm Friedemann, composer, 19-6916

Bachelor's button, flower, 14-4978, 4980

Picture, 14-4978

Backbone

account of, 1-259

cartilage disks of, 10-3732

contains nerve-cells and fibres, 8-2838-39

development in animals, 1-255-56, 259

* structure and uses, 5-1559-62

GENERAL INDEX

- Backboned animals**, *see* Vertebrates
- Bacon, Sir Francis**, English philosopher
life and writings, 3-1124-25
and cold storage, 5-1607
as essay-writer, 5-1620; 8-2865
death of, 5-1607
Pictures
 portrait, with father, 15-5619
 portrait (gravure), 5-1821
- Bacon, Henry**, designed Lincoln Memorial
Building, 5-1542
- Bacon, Nathaniel** (1648-76). An English colonist and Indian-fighter who gained fame in 1676 as the leader of Bacon's Rebellion in Virginia.
Picture and note, 2-551
- Bacon, Roger**, English philosopher
life and writings, 5-1572; 13-4864, 4866
Picture, portrait, 13-4859
- Bacon's rebellion**, 1676, note, and picture, 2-551
- Bacteria**, and plants, 1-332
discovery by Leeuwenhoek, 13-4670
form of fungi, 3-882
importance of, 5-1628
in linen manufacture, 9-3318
middlemen between dead animal and living plant, 1-120
reproduction of, 13-4826
use in making leather, 5-1550
See also Microbes
- Baden**. Fourth largest state of Germany, having an area of 5,820 miles. Bordering on the Rhine, Baden contains Mannheim, a great industrial centre; the capital, Karlsruhe; the famous university towns of Freiburg and Heidelberg; and the watering-place of Baden-Baden. Though containing much of the Black Forest, it produces rye, oats, barley, hemp and wheat.
- Baden-Powell, Sir Robert S. S.** English soldier, defender of Mafeking in the Boer War. Born, 1857.
organized Boy Scouts, 12-4451
- Badger**, animal, 3-873
Pictures, 3-869, 870; 13-4697
- Baeyer** 145, chemical, 13-4531
- Baffin, William**, arctic explorer, 8-2983
- Baffin's Bay**. *Picture*, 7-2556
- Bag**, *see* Bags
- Bagasse**, fibre of sugar-cane, 10-3416
- Bagdad**. Capital of Mesopotamia, on the Tigris. Founded by the Saracens in 763, on the site of Ctesiphon and Seleucia, it became a centre of Oriental learning under Harun-al-Rashid, but declined under the Turks.
communication, 18-6670
Picture, 18-6671
- Bagshot, Walter**, author, 11-4003
- Baggesen, Jens**, Danish poet, 19-7011
- Bagot, Sir Charles**, governor-general of Canada, 4-1484, 1486
- Bagpipes**. A musical instrument that has come down from very early times. It was known in the Orient and in Europe wherever the Celtic race was found, but nowadays it has come to be known as the national instrument of Scotland. The great Highland bagpipe has a mouth-piece, a leather bag which holds a reserve of air blown into it from the mouth, a chanter with a double reed and eight note-holes, and three drones each with a single reed. It is noted for the stirring martial music it can produce. The Irish bagpipe is on another pattern.
- Bags**, directions for making
 sewing-bag, felt, 18-6778
 shoe-bag, 8-2882
 string bag, 6-2163-64
- Bahamas**, islands in West Indies, 9-3191; 19-7102
- Bahia**, Brazil, settlement and early history, 19-7040
- Bahrein Islands**, 18-6676
- Baikal, Lake**. Sixth largest lake in the world, in east Siberia. 13,200 square miles in extent, it is 385 miles long and from 9 to 50 miles broad, and over 300 streams flow into it. It is frozen from the beginning of January to the end of May, but abounds in fish, notably sturgeon and herring. Seals are found in it.
- Bail**. Security put up to obtain the release of a person from arrest or from custody until the final decision in his case is given by the court. If the person "bailed out" appears in court, the bail is returned; if he does not appear, the bail is forfeited, that is, kept by the
- Bail** (*continued*)
state, and an order for his arrest is made out. Those who advance the security or bail are called bondsmen. A person held for a crime punishable by death is not allowed bail.
- Bailey, Edward Hodges**, sculptor, statue of Nelson, 12-4361
- Bailey, Philip James**, *see* Poetry Index for poem and note
- Baillie, Joanna**, *see* Poetry Index for poem and note
- Baillie, Robert**, Covenanter, 2-441-42
- Bainbridge, William**, captain of Constitution, 17-6330
Picture, portrait, 17-6327
- Baird, Thomas**, shoemaker of New England, 18-6442
- Baker, Benjamin**, designed Forth Bridge, 1-28
- Baker, Ray Palmer**, Canadian author, 15-5374
- Baker, Sir Samuel**, African explorer
exploration, and attack on slave trade, 2-471
Picture, portrait, 2-465
- Bakeries**
how bread is made, 1-379-80
Pictures, showing bread-making, 1-379-80
- Bakers**
Question about
 What is a baker's dozen? 16-5961-62
- Baking powder**. A chemically prepared substitute for yeast used in making biscuits, cake and some kinds of bread. Bicarbonate of soda, tartaric acid, and acid calcium phosphate are the chief ingredients used. When water is added, carbonic acid is given off, and this causes the dough to rise.
- Baksheesh**. Tip or gratuity demanded by Arab guides and others, especially from tourists.
- Baku, Russia**, 16-5858
petroleum, ancient times, 13-4534
Picture, 13-4546
- Balaclava, Russia**
Picture, 16-5855
- Balaclava, Battle of**
Poem about
Charge of the Light Brigade, by Lord Tennyson, 5-1778
- Balance**
control of, in cerebellum, 8-2841
organs of, canals in ear, 8-2719-20; 10-3425-27
See also Equilibrium
- Balance of power**. In international law, according to Woolsey, this means "that any European state may be restrained from pursuing plans of acquisition, or making preparations looking toward future acquisitions, which are judged to be hazardous to the independence and national existence of its neighbors."
- Balance of trade**. An expression used to describe the difference between the value of the imports and exports of a country.
- Balboa, Vasco Nuñez de**, discovered Pacific Ocean, 1-242-44; 9-3295
Pictures, 1-253
 portrait, 1-245
- Balboa, Panama**. *Picture*, 1-369
- Balder, or Baldur, the Beautiful**. The sun-god in Old Norse mythology, a son of Odin. He was so bright and beautiful that he shed light about him, and he was the wisest of the gods. He was killed by a piece of mistletoe in the hands of the blind god Hödur.
- Baldness**, cause of, 13-4827
- Baldpate**, bird, resembles widgeon, 11-3888
- Baldwin I**, made king of Jerusalem, 7-2586
- Baldwin, Matthias**, manufactured locomotives, 5-1618
- Baldwin, Robert**, Canadian statesman
Picture, statue by Allward, 14-5080
- Balearic Islands**. Spanish island group in the Mediterranean, including Majorca, Minorca and Iviza.
- Balfé, Michael William**, Irish musical composer, 10-3611
life and work, 19-6925
Picture, portrait, 19-6912
- Balfour, Arthur James, Earl of**. Born in Scotland, 1848. A British statesman. Conservative. Prime minister, 1902-05.
- Balliol, John**, king of Scotland, 13-4586
- Balistides**, group of fishes, 16-5900
- Balkan Mts.** Bulgarian range rising to 7,800 feet. It is traversed from north to south by the famous Shipka Pass.

GENERAL INDEX

- Balkan Wars**, 1912, 14-4926; 18-6462
Balkans, changes since World War, 17-6344, 6346
Ball, Albert, English aviator, 17-6292
Ball, Thomas, American sculptor, 14-4934
Ball-and-socket joint, definition, 5-1676
Ball games
 basket-ball, 3-1017-22
 bowls, 4-1400
 catch-ball, 4-1400
 cross-ball, 4-1400
 egg hat, 4-1400
 fives, 4-1400
 football, American game, 19-6960-61
 nine holes, 4-1400
 posture, or statues, 4-1400
 throwing the baseball, 4-1400
 trap-ball, 4-1400
 See also Baseball
Ballads, material about
 collections, by Scott and others, 7-2489
 English, characteristics, 1-304
 origin and definition, 1-215
Ballads, text of
 Allan Water, 2-488
 The Bailiff's Daughter, 11-4030
 The Ballad of Agincourt, 5-1885
 The Douglas Tragedy, 11-4112
 The Happiest Land, 5-1780
 Judas Iscariot, 14-5239
 The King and the Abbot, 10-3735
 King Cophetua and the Beggar Maid, 2-487
 King John and the Abbot of Canterbury, 10-3735
 King Lear and his Three Daughters, 5-1643
 Lochinvar, 12-4471
 Lord Ullin's Daughter, by Thomas Campbell, 2-737
 Maud Muller, 16-5707
 The Old Cloak, 19-6992
 The Revenge, 13-4739
Ballantyne, James, and Sir Walter Scott, 7-2632
Ballarat, Gold-mining and industrial centre in Victoria, Australia.
 width of street, 4-1261
Ballast, why it steadies ship, 14-5180
Balleney, John, antarctic explorer, 14-5090
Ballet. An Italian stage dance of the Middle Ages which spread to France and other countries of Europe and has come down to our time. Russia developed a ballet school of her own in the half-century preceding the World War. The ballet is usually danced by girls or women, and calls for intricate steps and poses and unusual costumes. The idea behind the ballet is the interpretation of music through graceful motion of the body.
Balloons
 dirigible, 1-168
 history and development, 1-167
 hot-air, directions for making, 10-3770
 reason for rising, 14-5038
Ballot. Originally a little ball used in secret voting. Sometimes the voter was given two balls, one black and one white, meaning "no" and "yes." If he dropped the white one in the box, he voted for the candidate; if the black ball, he voted against the candidate. Nowadays the most common form of ballot is the printed ticket upon which the voter marks a cross opposite the name of his choice for election. Any other mark destroys the ballot's value.
Balls, directions for making, of wool, 3-1155
 See also Ball games
 Questions about
 Does a roughened surface improve a golf ball? 16-5742
 What do the three balls over a pawnbroker's shop mean? 7-2484
 What makes the ball swerve in bowling? 18-6552
 Why does a ball bounce? 3-977
Balm of Gilead, account of, 9-3152
Balmaceda, José Manuel, president of Chile, 19-7038
Balmont, Konstantin, *see* Poetry Index for poem and note
Balsam, tree, balm of Gilead from, 9-3152
Balsam or jewel-weed, plant, note and picture, 15-5607
Balsam-root, flower, 18-6660
Baltic, Battle of
 Poem about
 Battle of the Baltic, by Tho. Campbell, 3-1140
Baltic Sea. Inland sea lying between Sweden, Finland, Russia, Esthonia, Latvia, Lithuania, Germany and Denmark. 166,397 square miles in extent, it contains the gulfs of Finland and Bothnia, both of which are frozen in winter. 200 rivers flow into it. The chief islands are Gothland and Oland, both belonging to Sweden, the Danish islands of Zealand, Funen and Bornholm, and the Aaland archipelago; ports include Abo, Helsingfors, Leningrad, Reval, Riga, Libau, Memel, Königsberg, Danzig, Stettin, Lübeck, Kiel, Copenhagen, Malmö, Stockholm and Gefle.
Baltimore, Lords of, and Maryland, 2-550, 552
 See also Calvert, George
Baltimore. Important Atlantic port on branch of Chesapeake Bay, Maryland. Huge business in oysters, corn export and manufacture of men's clothing and sail duck. Many beautiful buildings, including the Catholic Cathedral and Johns Hopkins Hospital, one of the foremost scientific institutions in the world. Attack on Fort McHenry inspired Star-Spangled Banner. The first blood of the Civil War was shed in its streets.
 Pictures, 11-3780
Baltimore oriole, *see* Orioles
Balto, dog, story of, 16-5735, 5737
 Picture, 16-5737
Baluchistan. Indian northwest frontier province; area, 54,228 square miles. Chief towns, Kalat, Las Bela and Quetta. Most of the people are warlike and pastoral Moslems.
Balzac, Honoré de, French author, 18-6719
 Picture, portrait, 18-6559
Bamboos, account of, 10-3519-20
 uses of, 9-3154
 Pictures, 9-3150-51
Banana quits, birds, account of, 8-2972
Bananas
 cultivation and uses of, 5-1624; 6-2060
 description of plant, 6-2060
 toy boat from skin, 11-4083
 Pictures
 gathering fruit, 6-2067
 plant, flower and fruit (in color), 8-3000
Banat, portion of Hungary, 14-4922
Banbury. English market town famous for its oat cakes and for the nursery rhyme which centres around its Cross. Banbury Cross, demolished in 1610, has been replaced by a new one.
Bancroft, George, American historian and U. S. Naval Academy, 18-6703
 life and writings, 13-4820-21
 Picture, portrait, 13-4822
Bandaging, directions for, 12-4266-67
 for broken bones, 13-4732-33
 Picture, twisting a bandage, 14-5001
Bandak, Nordsjo Canal, Norway, note and picture, 13-4790
Bandfish
 Picture, red bandfish (in color), 16-5783
Bandicoots, animals, account of, 7-2509
 Picture (gravure), 7-2506
Banberry, plant, description, 17-6279
Bangkok. Capital and port of Siam, on the Menam. Built largely on canals, it has been rapidly modernized and does a great trade in rice, teak and ivory.
Bank of England. The most important bank in the world and the central figure in the banking system of England. It was founded by William Protheroe in 1694 as a joint-stock association. For lending its entire capital to the Government it was given the right to issue bank notes and a monopoly of a certain kind of banking in England. This monopoly lasted until the nineteenth century. The Bank of England has always been very closely associated with the British Government. The Bank of England Building is in Threadneedle Street, London, and the bank has been nicknamed the "Old Lady of Threadneedle Street."
Bank of the United States. The first Bank of the United States was chartered February 25, 1791, as one of the first acts of the new Congress. Soon it dominated the entire banking system of the country and acted as a restraining influence upon the state banks. Its charter expired in 1811, and, through the opposition of the state banks, was not renewed. The disordered condition of bank-note circulation during the

GENERAL INDEX

Bank of the United States (*continued*)

next five years brought about a demand for a new charter for the Federal bank in 1816. The second charter lasted only until 1836. President Jackson vetoed its renewal in 1832.

Bankrupt. A person who is unable to pay his debts or one who has failed in business financially is a bankrupt. Under the bankruptcy laws the property of a bankrupt may be distributed among his creditors in proportion or up to what they are owed.

Banks, George Linnæus, *see* Poetry Index, for poem and note

Banks, Sir Joseph, and steamboats, 17-6400

Banks and banking. A modern bank receives money for safekeeping from its depositors; it loans money to those who need it and can guarantee repayment; and some banks issue notes which pass for money. In an ordinary commercial bank a depositor may draw out some or all of his money at one time by means of a written order called a check. In a savings bank it is expected that money be left for a longer period, and interest is credited every three or six months. All banks are subject to strict laws intended to guard against loss. Several thousand years ago men in Assyria did some of the things our modern banks do, and there were many banks in the Middle Ages.

Bannockburn, Battle of, 5-1680; 12-4210

Poem about

Bannockburn, by Robert Burns, 2-738

Bantam chickens, breed of fowls, 12-4494

Bantin, Javan ox, 4-1263

Picture (gravure), 4-1267

Banting, Frederick Grant, life and medical discoveries, 15-5493

Picture, portrait, 15-5489

Banyan tree, account of, 9-3261

Picture, 7-2418

Baobab tree, account of, 9-3262

Picture, 9-3267

Baptisteries, architectural history, 16-5716

of Duomo, Florence, 17-6162-63

Baracca, Major, Italian aviator, 17-6293

Barbados, island in West Indies, 9-3190-91;

19-7102

Barbarelli, Giorgio, *see* Giorgione, II

Barbarossa, *see* Frederick I, Barbarossa

Barbary apes, *see* Apes

Barbauld, Mrs. Anna Letitia, *see* Poetry Index, for poem and note

Barbeau, Marius, Canadian author, 15-5374

Barberry, shrub, account of, 13-4777-78, 4780

and wheat rust, with pictures, 5-1757, 1762

Pictures

flower (in color), 14-4991

fruit, 13-4777

fruit (in color), 11-4021

Barbers

Question about

Why is a red-and-white pole before a barber shop? 13-4828

Barbets, birds, account of, 9-3370

Pictures (in color)

blue-faced barbet, 10-3624

groove-billed barbet, 12-4369

Barbizon school of painting, 7-2370

Barbosa, Ruy, Brazilian journalist, 16-5887

Barcelona, Spain, 14-5050

Barcelona nuts, 6-2278

Barents, William, arctic explorer, 8-2983

Picture, writing diary in hut, 8-2979

Barges, of concrete, 7-2307

Barham, R. H., English poet, 12-4229

Picture, portrait, 12-4227

Baring-Gould, Sabine, hymn-writer, 12-4440

See also Poetry Index for poem and note

Bark of trees,

description of, in various trees, 13-4635

growth of, 11-4096

uses of, 12-4378-79

as food, 12-4515

Question about

Why do trees have coats of tough bark? 16-5962

Bark, sailing vessel, rig of, and picture, 11-4087

Barkantine, sailing vessel, rig of, and picture, 11-4087

Barlass, Kate, story of, 13-4579

Barley, account of, 5-1852

bread made from, 1-372

Pictures, 5-1850; 10-3525

Barley, Wall, grass

Picture, with note, 10-3659

Picture (in color), 10-3522

Barley sugar, how to make, 2-752

Barlow, Francis C.

Picture, receiving surrender of prisoners, 7-2443

Barnabas, St. Levite of Cyprus who is mentioned in the Acts of the Apostles. He is said to have become first bishop of Milan and to have suffered martyrdom before 75 A.D. An epistle attributed to him is still in existence.

Barnacles, account of, 16-5956

Pictures, 16-5955

shells, 19-6886

Barnard, Lady Anne, *see* Lindsay, Lady Anne

Barnard, Edward Emerson, astronomer, 1-287

Barnard, George Grey, American sculptor,

14-4938-39

Picture, The Two Natures, 14-4935

Barnard, J. E., invention in microscopes, 13-4671

Barnes, William, English poet, 12-4228

Barnum, P. T. (1810-91). Great American showman. Owned famous circus, known as "Greatest Show on Earth." Brought the singer Jenny Lind to America. Exhibited many freaks, including the dwarf, "General Tom Thumb."

Barometer

aneroid, 15-5288

directions for making, with pictures, 10-3625

explanation of, 15-5287

floral, how to make, 3-1028

use in measuring height, 11-3840

weather, how foretold by, 8-2718

weather-glass, chemical, how to make, 12-4502

Baron Munchausen, Adventures of: extracts and note, 4-1521-27

Baroque style, in architecture, 17-6310; 18-6500

Italian examples, 17-6311

Barr, Matthias, *see* Poetry Index, poem and note

Barraud, Francis, artist

Picture, Dr. Johnson visiting Sir Joshua

Reynolds, 7-2333

Barren Lands, Canada, description, 7-2560, 2562

Barrie, Sir James Matthew, as writer of fairy tales, 9-3199

* Peter Pan, summary of, 13-4659-64

* Sentimental Tommy, quotations and summary, 9-3239-44

writings, 11-3897

Picture, portrait, 9-3193

Barrow, Sir John, encouraged exploration, 8-2986

Barrows, grave-mounds, in England, 4-1317

Barry, Sir Charles, English architect, life,

12-4360-61

Barry, John. Born at Tacumshane, County of Wexford, Ireland, 1745; died at Philadelphia, Sept. 13, 1803. He came to America and settled in Philadelphia about 1760. He was given command of the Lexington in 1776, at the outbreak of the war, and captured the Edward, the first ship ever taken by a commissioned officer of the U. S. Navy. He was later on a ship which was captured by the British, but escaped. He was appointed commodore in 1794.

See also 17-6326, 6328

Barry, St. Bernard dog, story of, 16-5736, 5738

Barter, exchange of goods, 16-5679-80

explanation, 15-5589

in fur trade, 12-4340

Bartholomé, Paul Albert, French sculptor, 13-4706

Picture, Tomb of Death, 13-4705

Bartholomew, St. Apostle of India and Arabia, according to tradition, and said to have been martyred by an Armenian prince on the shores of the Caspian. He is probably the Nathaniel mentioned by St. John. Jesus called him "an Israelite in whom is no guile."

Bartlett, Paul Wayland, American sculptor, 14-4938

Picture, The Bear-tamer, 14-4935

Bartlett, Robert A., and Peary's expedition, 13-4720-21

commanded the Karluk, 13-4722

Bartolo, or Bartoli, Taddeo, Italian painter, 2-697

Picture (gravure), St. Francis, 2-696

Bartolommeo, Fra, Italian painter, 5-1740

paintings, account of, 3-957-58

Barton, Clara, life and work, 14-5270-71

Barton aqueduct, England, notes and pictures, 13-4792

GENERAL INDEX

- Bartonia**, flower. *Picture* (gravure), 19-7174
- Bartram, William**, American botanist, 19-7051
- Bartsia**, plant
red bartsia, note on, 14-5160
Pictures
alpine bartsia (in color), 15-5610
red bartsia, 14-5160; (in color), 14-4982
- Barye, Antoine Louis**, French sculptor, 13-4706
Picture, Theseus and the Centaur Bianor, 13-4705
- Basalt**, rock, description, 17-6386
Picture, columnar basalt, 6-2073
- Baseball**
* account of, 17-6141-44
leagues, 17-6141
- Baseball bat**, how to mend, 13-4737
- Basil**, flower. *Picture* (in color), 14-4994
- Basilicas**, Roman, 15-5348
models for early churches, 2-580; 16-5715
- Basilisks**, imaginary reptiles, description, 1-354
- Basilisks**, lizards, 14-5232
Picture, 14-5231
- Basket-ball**, rules and equipment, 3-1017-22
- Basket-ball standard**, making of, 3-1016
- Baskets**, directions for making
raffia, 18-6638-39
rattan, 6-2042
reed, 3-897-98
wood-basket, 19-7082
Picture, Indian woman making basket, 19-7241
- Basques**, may be Iberian stock, 14-5042
- Bass**, fish, account of, 15-5630-32
striped, description, 16-5774-75
Pictures, 15-5631; 16-5779
Pictures (in color)
Japanese sea bass, 16-5787
sea bass, 16-5785-86
stone bass, 16-5782
- Bassano, Alberta**, dam at, 7-2546
Picture, 7-2551
- Basswood trees**, American lindens, 11-4103
uses of, 12-4378
- Bast**, or Hathor, Egyptian goddess, 3-812
- Bastien-Lepage, Jules**, French painter, 7-2480
Pictures
Joan of Arc, 7-2479
Old Beggar-man, 7-2479
- Bastille**, French prison, destruction of, 6-2131, 10-3566
unjust imprisonments, 10-3440
Question about
What is the story of the Bastille? 16-5741
Picture, showing its downfall, 6-2131
- Basutoland**, South African native territory, under British administration; area, 11,700 square miles; capital, Maseru.
See also 9-3052
Picture, Mont aux Sources, 9-3049
- Bat**, *see* Baseball; Baseball bat
- Batavia**, Capital of Java and the Dutch East Indies, exporting coffee, rice, sugar, sago, tin, birds' nests, tobacco, tea and timber. Situated on the Bay of Batavia in a low plain. Founded by Dutch, 15-5564
population, 15-5568
- Bateleur eagle**, 10-3757
- Bates, David**, *see* Poetry Index for poem and note
- Bates, Harry**, British sculptor, 13-4856
Picture, relief of Socrates, 16-5917
- Bates, Katharine Lee**, *see* Poetry Index, for poem and note
- Bathing**, rules for, 7-2513
- Baths**, Roman, 15-5348
- Baths, Public**, N. Y. city, 15-5624
- Bathurst**, capital of Gambia, 9-3056
- Baton Rouge**, Capital of Louisiana, on the eastern bank of the Mississippi River. Founded by the French early in the history of settlement, during the Civil War in 1862 it was the scene of a fierce encounter between the Union and Confederate forces. The name means "red staff."
- Bats**
* Bats and their friends, 1-315-20
description of, for game, 8-2880, 3023
Question about
Why do bats hide themselves when the sun shines? 7-2610
* *Pictures*, 1-314-19
- Batteries, Electric**, *see* Electric batteries
- Batteries, Storage**, *see* Storage batteries
- Battle Harbor**, Labrador, hospital at, 7-2498
Picture, 7-2495
- Battle Hymn of the Republic**, song, how written, 18-6513
- Battle of the Frogs and Mice**, parody, 16-5749
- Battle of the Kegs**, song, how written, 18-6512
- Battle of the Nations**, Leipzig, 10-3572
- Battledore**, how to mend, 13-4737
- Battledore and shuttlecock**, game, 11-3855
- Battleships**
in ancient Greece, 11-3912, 3914
in ancient Rome, 11-3914
in English navy, 11-3918
in U. S. navy, 18-6816-17
ironclads in Civil War, 7-2434
Pictures
ancient types, 11-3913
of U. S. navy, 1-365; 18-6817-24
- Batula**, name for benzoin, 9-3152
- Batum**, Georgian Black Sea port, exporting petroleum from Baku.
- Baudry, Paul**, French painter, 7-2482
- Baumgartner, Stephen**
Picture, portrait, as St. George, by Albrecht Dürer, 4-1347
- Bauxite**, source of aluminum, 13-4526
- Bavaria**, Largest and most important German state after Prussia, including the Palatinate on the left bank of the Rhine. Bavaria has an area of 30,000 square miles; nearly a third of the country is covered with forests, but the soil is fertile and agriculture very important. Iron is mined extensively, and there are considerable manufactures. The capital is Munich, with splendid art collections; other important places are Nuremberg, a great toy-making centre; Augsburg, formerly a free city; Regensburg, Fürth, Bamberg, Würzburg, Bayreuth and Ingolstadt, with Kaiserslautern, Landau and Speyer in the Palatinate.
- Baxter, Richard**, *see* Poetry Index for poem and note
- Bay**, *see* name of bay; as Fundy, Bay of
- Bay Psalm Book**, first book printed in America, 18-6509, 6634
- Bayard, Chevalier de**, story of, 13-4577-78
Picture, death of, 13-4578
- Bayberry**, 14-5161-62, 5165
Picture, 14-5161
- Bayeux**, Ancient city of Normandy, France, with a museum containing the Bayeux Tapestry. Its cathedral was rebuilt by William the Conqueror in 1077, but the greater part dates from the 13th century.
- Bayle, Pierre**, French writer, 18-6714
- Bayly, Thomas Haynes**, song-writer, 10-3608-09
Picture, portrait, 10-3605
- Bayonne**, France, cathedral, 17-6160
- Bayreuth**, Bavarian town famous for its associations with Wagner and its splendid opera house. Textiles are manufactured.
- Beach grass**
Picture, with note, 10-3654
- Beach-plums**, 14-5165
- Beachy Head**, Perpendicular chalk cliff over 500 feet high on the Sussex coast, England, at the eastern end of the South Downs. Off it a naval battle was fought in 1690 by the English and Dutch against the French.
- Beaconsfield, Earl of**, *see* Disraeli, Benjamin
- Beads**
belt for Indian costume, directions for, 9-3114-15
* dolls' jewelry, how to make, 4-1399
- Beagles**, hunting dogs, 2-718
- Beaked lizard**, name for tuatera, 14-5230
- Beam** of a ship, 14-5003
- Bean bag**, directions for making, 1-132
- Bean-bag game**, directions for making, 9-3116-17
- Beans**, account of, 7-2613-14
wild, *see* Ground-nut
Pictures, 7-2620-21
- Bear and the Little Wolf**, play, 18-6782-83
- Bear grass**, plant, description, 19-6928
Picture, 19-6938
- Bearberry**, shrub, 11-4020; 14-5165
Pictures, 14-5161
flower of (in color), 15-5609
fruit of (in color), 11-4022
- Beard, Daniel**, founded Sons of Daniel Boone, 12-4451
- Beard, Thomas**, *see* Baird
- Bears**
* Bears and their cousins, 3-865-72
black, 3-871

GENERAL INDEX

Bears (continued)

- blue, 3-872
- brown, 3-865-66
- "cinnamon bears," 3-871
- grizzly, 3-871
- polar, 3-866, 871
- sloth, 3-872
- spectacled, 3-872
- stories about
 - Bear in the well, 18-6480
 - How the bear lost his tail, 17-6199
 - toy, how to make, 2-511-12
- Pictures*, 3-865-70
- Bears and Bulls.** In the language of the Stock Exchange a Bear is a person who sells stock he does not possess, intending to make delivery with stock he buys at a lower price. A Bear is always hoping for prices of stock to fall. A Bull is one who buys stock hoping it will increase in price so that he can sell it at a profit.
- Bearweed**, name given skunk cabbage, 17-6274
- Beatrice**, beloved of Dante, 17-6150
- Beatrice**, Christian martyr, 9-3068
- Beau Brummel**, George Bryan (1778-1840). The son of Lord North's private secretary who gained his reputation as an exquisite at Eton and Oxford. At the court of George IV he was long regarded as an oracle on matters of dress and behavior. He came to a sad end, dying destitute in Caen, France.
- Beaubien, Mark**, of Chicago, 19-7107
- Beaufort, Margaret**, mother of Henry VII, 5-1813
- Beauharnais, Josephine**, *see* Josephine, empress of France
- Beaumarchais, Pierre Augustin de**, French writer, 18-6715
- Beaumont, Francis**, English dramatist, 3-1125
- Beauregard, Pierre Gustave Toutant** (1818-93). American soldier, born in Louisiana. He graduated at West Point; served in Mexican War; resigned to enter Confederate service; captured Fort Sumter; and served to end of war.
- in command at Bull Run and Shiloh, 7-2433
- Beauty**, in art, qualities, 1-62-63
- Question about*
 - What is beauty? 5-1808
- Beauty and the beast**, story of, 18-6607
- Beauvais**, France, cathedral, 17-6158
- Beaux, Cecilia**, American painter, 10-3455
- Picture*, Girl in White (gravure), 10-3461
- Beavers**, animals, account of, 3-1132-33
- Pictures*, 3-1129; 13-4697
- building a dam, 3-1127; 12-4337
- Bechuanaland**. British South African protectorate; area, 275,000 square miles; capital, Mafeking, Cape Province. Here is much of the Kalahari Desert.
- surface of, 9-3052
- and Robert Moffat, 2-468
- Becker, Carl**, artist
- Picture*, Emperor Maximilian receiving ambassador, 11-3961
- Becker, Charlotte**, *see* Poetry Index for poem and note
- Becker**, fish
- Picture* (in color), 16-5781
- Becket, Thomas à**, *see* Thomas à Becket, St.
- Becket, Thomas à**, poet, *see* Poetry Index, for poem and note
- Bedbugs**, 17-6072
- Beddoes, Thomas Lovell**, *see* Poetry Index, for poem and note
- Bede, The Venerable**, Anglo-Saxon scholar
- history, 1-299
- life and writings, 4-1430, 1432; 8-2844-45
- manuscript, appearance, 10-3548
- translated Gospel of St. John, 1-126
- Pictures*
 - portrait, 12th century, 2-476
 - portrait (in group), 2-472
 - dictating the Gospel of St. John, 1-122
- Bedouins**, *see* Arabs
- Beds**
 - Question about*
 - Why is it dangerous to sleep in a damp bed? 4-1230
- Bedstraw**, plant, description, 18-6667
- Picture*, northern bedstraw, 18-6663
- Pictures* (in color)
 - mountain bedstraw, 15-5609
 - water bedstraw, 16-5883
 - yellow bedstraw, 13-4877

Bee-eaters, birds

- account of, 9-3373
- Pictures* (in color)
 - Lafresnaye's bee-eater, 10-3624
 - pink-crested, 10-3624
- Bee-flies**, 17-6423
- Beech trees**, account of, 12-4247, 4251
- "blue beech" is ironwood, 13-4640
- how to tell wood of, 6-2048
- twigs and buds, 13-4642
- Picture*, 12-4251
- Beechdrops**, plant, description, 18-6572
- Beechey, Capt. Frederick William**, and Sir John Franklin, 8-2986
- Beeching, H. C.**, *see* Poetry Index for poem and note
- Beechnuts**, account of, 6-2278
- Pictures*, 6-2274; (in color) 11-4024
- Beer**
 - made from barley, 5-1852
 - not a food, 8-2682
 - yeast in brewing, 5-1628
- Bees**
 - * Bees and wasps, 17-6221-33
 - aid agriculture by fertilizing flowers, 18-6721-22
 - brain of, 8-2838
 - bumblebees, 17-6228
 - carpenter bees, 17-6228
 - fertilize flowers, 3-1014
 - honey comb, how made, 17-6222, 6224
 - in Japan, 18-6722
 - Isle of Wight disease, 17-6228
 - leaf-cutter bees, 17-6227-28
 - mason bees, 17-6228
 - parasites, 18-6722
 - queen bees, 2-503-04; 17-6224-26
 - superstitions about, 17-6222
 - wild bees, 17-6228
 - Poems about*
 - The Bees, by A. P. Graves, 4-1519
 - Little Busy Bee, by Isaac Watts, 2-484
 - Questions about*
 - When bees take honey from flowers do flowers get more? 4-1233
 - Why does a bee make a humming sound 3-1116
 - Why does a bee sting? 11-3843
- * *Pictures*, 17-6221-31
- bees in a hive, 17-6220
- eye and tongue, 1-218
- Pictures* (in color), facing 18-6721
- Beethoven, Ludwig van**, German musical composer
- * life and work, 19-6918, 6920
- character of his music, 19-7074, 7076
- music composed when deaf, 10-3557
- Pictures*, portrait, 19-6912
- statue by Robert Weigls, 19-7076
- Beetles**
 - * Great beetle family, 18-6623-30
 - blister beetles, or Spanish flies, 18-6723
 - Colorado beetle and potato crop, 18-6732
 - how to distinguish from other insects, 18-6624
 - Japanese beetle, 18-6734
 - longicorn, larvæ, length of life, 18-6630
 - method of communication, 18-6624
 - parasites of ants, 18-6627
 - Question about*
 - Why do we fear a beetle when we know it cannot harm us? 1-310
 - Pictures*, 1-257; 18-6623, 6625
 - Pictures* (in color), 18-6548
- Beets and beet-sugar**
 - account of, 7-2531-32
 - beets as garden vegetable, 7-2624
 - cultivation and manufacture, 10-3418
 - discovery and importance of beet-sugar, 10-3415
 - in Poland, 13-4688
 - Pictures*
 - cultivation in France, 10-3415
 - making sugar, 10-3419, 3421
 - sugar-beets, 7-2533
- Begbie, Harold**, *see* Poetry Index for poem and note
- Begbie, Janet**, *see* Poetry Index for poem and note
- Beggar-ticks**, plants
- Picture* (in color), 16-5882
- Beginning of freedom**, * 5-1565-73
- Begonia**, plant, note and picture, 1-331
- Picture*, frilled flower (gravure), 19-7178

GENERAL INDEX

- Behistun Rock**, key to cuneiform writing, 2-648; 3-912
inscriptions read by Sir Henry Rawlinson, 10-3548; 18-6670
- Behrend, John**, made first piano in America, 5-1796
- Behring, A. E.**, physician, medical discoveries, 15-5492
Picture, portrait, 15-5481
- Behring, Vitus**, *see* Bering
- Beirut**, Capital and chief port of Syria, exporting silk, oil, wine, gums and fruit.
- Beisa**, animal, 4-1444
- Belcher, Sir Edward**, Arctic explorer in search for Sir John Franklin.
Picture, portrait, 8-2977
- Belestier, Elliot**, *see* Poetry Index for poem and note
- Belfast**, Largest Irish city and port, capital of northern Ireland. Standing at the entrance of the Lagan to Belfast Lough, in County Antrim, it is famous for its shipbuilding industry, many of the world's largest liners being built here. The linen industry is also important, but the city has few notable buildings except Queen's University and the Protestant cathedral.
Picture, City Hall, 8-2934
- Belfort**, French city, 11-3818
- Belgica**, ship, in antarctic exploration, 14-5091
- Belgium**
architecture, *see* Architecture, Belgian colony, Congo Free State, 18-6812, 6814
* description, 15-5495-5502
electric power development, 15-5500
history
became separate kingdom, 1830, 15-5564
* Story of the Netherlands, 15-5555-68
industries, 15-5498, 5500
languages, 15-5495
map, 15-5557
painting, *see* Painting, Flemish
population, 15-5495
ravaged land reclaimed by earthworms, 19-7146
song, La Brabançonne, by Jenneval, 17-6253
Pictures, 15-5494-5506
- Belgrade**, Capital of the kingdom of the Serbs, Croats and Slovenes, Jugo-Slavia, at the junction of the Save and Danube. A trade centre, and once an important fortress, it has many times been besieged.
- Belgrano, Manuel**, Argentine general, 19-7033
- Belinsky, Vissarion**, Russian author, 19-6908
- Belisarius**, Byzantine general
note and picture, 13-4799
Question about
Why should we know the name Belisarius? 16-5743
- Belize**, capital of British Honduras, 9-3190
- Bell, Alexander Graham**, inventor
* life, 17-6242, 6244
and invention of telephone, 17-6184, 6186
developed wax record for talking machine, 1-262
Pictures
portraits, 17-6235, 6240
portrait, with parents, 15-5617
scenes from his life, 17-6243
- Bell, Andrew**, English educator, 14-5254
- Bell, Henry**, built steamboat Comet, 17-6399-6400
Pictures
portrait, 17-6397
Comet, his steamboat, 17-6399
- Bell, Patrick**, made a mechanical reaper, 19-7210
- Bell birds**, account of 9-3286
Pictures, 9-3277, 3287
- Bell Telephone Laboratories**, and picture transmission, 17-6063
- Belladonna**, drug, from deadly nightshade, 17-6126
use of, 8-2912
- Bellamy, Edward** (1850-98). An American journalist and author. His best-known work is Looking Backward.
- Belleau Wood**. The first important operation of the Second Division of the United States Army during the World War was the capture of Belleau Wood on the Marne by the Marine Brigade in June, 1918. The Brigade was cited in general orders of the Sixth French Army, and the name of the wood was changed to "Wood of the Marine Brigade."
- Bellflower Family**, in botany, 13-4874
- Bellflowers**, 15-5387
Pictures (in color)
clustered bellflower, 14-4996
creeping bellflower, 13-4877
giant bellflower, 14-4991
ivy-leaved bellflower, 16-5881
spreading bellflower, 14-4988
- Bellingshausen, Fabian von**, antarctic explorer, 14-5089-90
Picture, portrait, 14-5089
- Bellini, E.**, inventor of wireless compass, 17-6248
- Bellini, Gentile**, Italian painter, 3-1103-04; 4-1460-61
Pictures
Doge Giovanni Mocenigo, 3-1105
Sultan Mohammed II, 3-1105
- Bellini, Giovanni**, Italian painter, 3-1103-04; 4-1460-61
Pictures
portrait, 4-1455
Virgin and Child, 4-1457
Pictures (graveure)
A Doge of Venice, 1-68
Holy Family, 3-1110
Madonna and Child, 3-1110
Transfiguration, 3-1112
- Bellini, Jacopo**, Italian painter, 3-1103; 4-1460
- Bellini, Vincenzo**, Italian musical composer, 19-6924
Picture, portrait, 19-6912
- Bellows, George**, American painter, 10-3454
Pictures
Lady Jean (graveure) 10-3464
Up the Hudson (graveure), 10-3463
- Bellows**
Question about
Why have bellows a round hole on one side? 7-2484
- Bells**
electric, *see* Electric bells
See also Liberty Bell
Poems about
The Bells, by Edgar Allan Poe, 16-6023
Curfew Bell, by R. H. Thorpe, 7-2363
- Bellwort**, flower, description, 17-6278
Picture, 17-6277
- Belshazzar**, king of Babylonia
writing on wall foretold doom, 2-660
Poem about
Vision of Belshazzar, by Lord Byron, 7-2529
- Belt**, bead, how to make, 9-3114-15
- Beluga**, a dolphin, account of, 6-2218
Picture, 6-2219
- Ben Bolt**, song, origin of, 18-6514
- Ben-Hur**, by Wallace, * summary and quotations, 10-3745-52
- Ben Nevis**, Highest mountain in the British Isles, in the Grampians, 4,406 feet.
Picture (graveure), 7-2302
- Benares**, Holy city of the Hindus, on the Ganges. It contains many temples and shrines, and is visited by vast numbers of pilgrims. It is a centre of trade, as well.
- Bench-hook**, how to make, 17-6262
- Benedict, St.**, story of, 6-1996
Picture, portrait by Memling, 6-1996
- Benghazi**, Tripoli, salt evaporation, note and picture, 3-924
- Benjamin, Judah P.**, 19-7167
Picture, portrait, 19-7161
- Benjamin tree** produces benzoin, 9-3152
- Bennett, Arnold**, 11-3899
- Bennett, Floyd M.** Warrant Officer U.S.N. and pilot of the Fokker plane which was used by Commander Richard E. Byrd and Bennett for the first airplane flight to the North Pole, May 9, 1926. Died at Quebec, April 25, 1928. *See* Byrd.
- Bennett, James Gordon**, sent Stanley to Africa, 2-470
- Bennett, William Cox**, *see* Poetry Index, for poem and note
- Bennington**, Vermont
Picture, First Church (graveure), 18-6685
- Benson, Arthur Christopher**, *see* Poetry Index, for poems and notes
- Benson, Frank W.**, American painter, 10-3455
decorations in Library of Congress, 5-1536
Picture, My Daughter (graveure), 10-3461
- Bent grass**, note and pictures, 10-3651
Picture, 10-3525
- Bentley, Wilson A.**, photographed snow-crystals, 14-4906

GENERAL INDEX

- Benton, Thomas Hart**, American statesman, life, 10-3494-95
Picture, portrait, 10-3493
- Benzene (benzol)**, in illuminating gas, 2-636
obtained from coal, 13-4542
used in making toluol, 2-636
- Benzoate of soda**. An antiseptic or disease preventive quite extensively used in preserving food substance from decay. Its use is allowed by law in a quantity not larger than one-tenth of one per cent. It is a compound of soda and benzoic acid.
- Benzoin**, a gum resin, 9-3152
Picture, plant producing (in color), 8-2997
- Benzol**, see Benzene
- Beowulf**, first English poem, 1-299
story of, 1-56-57
- Béranger, Pierre Jean de**, French poet, 18-6717
See also Poetry Index, for poems and notes
- Berbera**, capital of British Somaliland, 9-3054
- Berbers**, in Africa, 9-3047
in Spain, 14-5044
- Beresina**. Tributary of the Russian Dnieper on which Napoleon's army suffered disaster in 1812.
- Bergen**. Second largest Norwegian city and port, with a cathedral and a great trade in fish.
- Bergylt**, fish
Picture (in color), 16-5782
- Beri-beri**, disease, and use of white flour, 8-2802
- Bering, Vitus**, arctic explorer
discovered Alaska for Russia, 10-3584
expeditions across Siberia, 8-2984
explored Alaskan coast, 16-5789
- Bering Sea**. Part of the Pacific lying between Siberia, Alaska and the Aleutian Islands. It connects with the Arctic by Bering Strait.
- Bering Sea Question**. The original dispute of many years' standing between the United States and Canada over the sealing rights in Bering Sea was settled by arbitration. The arbitrators met in Paris in 1893, and the decision was in favor of Canada. Friction continued, however, and two conferences on the question were held in 1897, one between the United States and Canada, the other between the United States, Russia and Japan. Trouble continued, and it seemed as if the seal herd might be exterminated through seal-poachers of the different nations. In 1911 a convention was held between the United States, Great Britain, Russia and Japan prohibiting open pelagic sealing for thirty years, north of 30° North Latitude. The kill was to be made by the United States Government sealers, and the pelts or proceeds distributed in an arranged proportion between the four nations concerned.
- Bering Strait**, named for Vitus Bering, 8-2984
- Berkeley, Sir William**, royal governor of Virginia, 2-555
- Berkshire**. Agricultural county of southern England, containing Windsor, Abingdon, Maidenhead, Wallingford, Newbury, and Reading, the capital. Area, 725 square miles.
- Berlin**, Germany, 12-4170
note on, 12-4160
Pictures, 12-4160
Reichstag Building, 12-4161
Pictures (gravure), 12-4173, 4177, 4179
- Berlin**, New Hampshire
Picture, 11-3781
- Berlin Congress**, 1878. Settled Balkan affairs after the Russo-Turkish War.
- Berliner, Emile**, and talking-machine inventions, 1-262
- Berlioz, Henry**, French musical composer
life and work, 19-6922-23, 7150
- Bermuda Islands**, account of, 9-3191
- Bernacchi, Louis**, antarctic explorer, 14-5092
- Bernadotte, J. B. J.**, see Charles XII, king of Norway and Sweden
- Bernard of Clairvaux, St.**, and Second Crusade, 7-2587
life of, 13-4862
Pictures
portrait, 13-4859
in monastery, 13-4865
- Bernard of Menthon, St.** (923-1007). Builder of a church and house of refuge on the St. Bernard Pass, where his mission was to tame the banditti and protect travelers. He died at Novara in 1007.
- Bernardin de Saint Pierre, Jacques Henri**
French writer, 18-6716
- Berne**, Switzerland, 16-6006-07
description, 17-6083-84
- Bernese Oberland**. Division of the Swiss Alps containing the Finsteraarhorn, 14,000 feet, Aletschhorn, Wetterhorn and Jungfrau. It is the most popular winter-sports ground in the world, and contains the resorts of Interlaken, Mürren, Adelboden, Grindelwald, Château d'Oex and many others. The Gemmi Pass through the Bernese Alps connects northern Switzerland with the Rhone valley.
- Bernhardt, Sarah**, actress
Picture, in scene from Queen Elizabeth, 18-6603
- Bernini, Giovanni Lorenzo**, Italian sculptor, 13-4608
and St. Peter's, Rome, 17-6310
- Berries**
ornamental, 13-4776, 4778, 4780, 4782; 17-6279
plant-breeding of, 4-1388
Burbank's work, 15-5385-86
salmon berry, description, 19-6934, 6936
- Bertillon system**. Named for Alphonse Bertillon, chief of the department of identification in the Prefecture of Police of the Seine. He devised a means of identifying criminals by means of measurements which included notes of markings, deformities, color, impression of thumb lines, etc.
- Beryl**, precious stone
aquamarine, a variety of, 19-7227-28
emerald, a variety of, 19-7228
Picture (in color), facing 19-7225
- Berzelius, Jöns Jakob, Baron**. Swedish chemist; born near Linköping, 1779; died, Stockholm, 1848; contributed much to the atomic theory.
- Besançon**. Roman Vesontio, in eastern France, with remains of a triumphal arch, an aqueduct and an amphitheatre. It has a 12th-century cathedral and a bishop's palace, and manufactures watches.
- Besant, Sir Walter**, novelist, 11-3898
- Bessarabia**. District of Rumania lying between the Pruth and Dniester. Up to 1920 it formed part of Russia; Kishenev, the Rumanian Chisinau, being the capital.
given to Rumania, 14-4922
- Bessemer, Sir Henry**, inventor, 19-7207
invention for changing pig iron into steel 6-1939
- Best, C. H.**, and cure for diabetes, 15-5493
Picture, portrait, 15-5489
- Best Friend**, early American locomotive
Picture and note, 5-1617
- Betel**. An Asiatic palm which bears an orange-colored drupe with an outer husk. The nut, used as a masticatory, stains the teeth black, and is pungent and astringent.
- Betelgeuse**, star
Picture, size, compared with sun, 11-3921
- Beth Gelert**, Wales, story of, 5-1693
- Bethlehem**, Palestine
Picture, 18-6677
- Bethmann-Hollweg, Theobald von A.** (1856-1921). Imperial Chancellor of Germany from 1909 to 1917. He had a specially Prussian career, was Chief President of the Province of Brandenburg in 1905 and Prussian Minister of the Interior. Indecision and half-heartedness marred his foreign as well as his home policy. Brought to account by Hindenburg and Ludendorff in 1917, the Chancellor resigned and took no further part in politics.
- Betonys**, flower, description, 18-6664
- Betrothed, The**, by Scott, note on, 11-4069
- Bettes, John**, British painter, 6-2000
Picture, Portrait of Edmund Butts, 6-2003
- Beverley, Robert**, book on Virginia, 12-4445
- Biarritz**. Popular seaside resort in southwest France, with a delightful climate and a fine beach.
- Bibaud, Michel**, Canadian author, 14-5104-05
- Bible**
* Greatest book in English, 2-473-76
authorized version, 2-473-74, 476
beauty as literature, 2-474-76
collection of writings, 15-5464
curious names of editions, 14-4950
examples of literary forms, 2-474-76
first copy printed in America, 18-6635
first printed copy, Gutenberg's, 9-3384
influence on the English language, 2-473-76

GENERAL INDEX

Bible (continued)

- translations
 - Bede translated John into Anglo-Saxon, 8-2845
 - Coverdale's translation, 1-306
 - Eliot's translation for Indians, 18-6635
 - Luther's, 11-3964
 - St. Jerome's, 13-4862
 - Tyndale's, 1-306; 2-473
 - Wyclif's, 2-473; 5-1683
- Questions about
 - How did the Breeches Bible get its name? 14-4950
 - How many words are there in the Bible? 16-5961

Pictures

- chained in library at Hereford Cathedral, 2-473
- from manuscript Bibles (in color), 2-480
- preaching from English Bible, Tudor times, 3-1123

Bicameral system. In government, a system of two Houses or Chambers for legislative work.

Bicci, Lorenzo di, Italian artist

Picture, St. Nicholas, 6-1990

Bichromate cell, description, 16-5672

Bicycles, cause demand for rubber, 4-1406

how to clean, 15-5335

tires, how to mend, 13-4737

Biela's comet, 10-3671

Bielski, shower of meteors, 10-3672

Bierregaard, H. A., see Poetry Index for poem and note

Bierstadt, Albert, American painter, 9-3332

Biffen, Professor, developed variety of wheat, 5-1760

Big ball we live on, * 1-17-25

Big Black River. American river, rising in southeast Missouri. Flows into White River, Arkansas. 400 miles.

Big Horn River. American river, rising in Rocky Mountains, Wyoming. Flows into Yellowstone River. 500 miles.

Big trees of California, see Sequoia trees

Bighorns, or Rocky Mountain sheep, 4-1375

Bilateral symmetry, explanation of, 5-1560

Bilbao, Spain, 14-5050

Pictures, 14-5052-53

Bilberry, shrub, 11-4020; 13-4776; 15-5604, 5608

Pictures, 15-5604; (in color), 11-4026

Bile, use in digestion, 6-2086

Bilge of a ship, 14-5002

Bill of attainder. See Attainder.

Bill of exchange. An unconditional order in writing addressed by one person to another requiring the person to whom it is addressed to pay on demand or at a fixed time a certain sum of money either to a specified person or to bearer.

Bill of lading. A written account of goods shipped by any person, signed by the agent of the owner of the vessel or by its master, acknowledging the receipt of the goods and promising to deliver them safe at the place directed, dangers of the sea excepted. Also a similar account issued by a railroad or other common carrier on land.

Bill of sale. A formal instrument or deed for the transfer of goods and chattels.

Billings, Josh (Henry W. Shaw), American author, life and writings, 13-4816-17

Billings, William, of Boston, 18-6509

Bimetalism. In coinage the employment of two metals (as gold and silver) to form at the same time, in combination with each other, the standard of values.

Binary stars, 11-3924, 3926

Bindweed, field convolvulus, 14-5158;

15-5394-95

difficult to exterminate, 9-3392-93

Pictures, 15-5395; (in color) 15-5398

Bingen, Germany

Picture, Mouse Tower, 12-4165

Bingo, game, 8-2744

Binturong, animal

Picture, (grave), 2-500

Binyon, Laurence, see Poetry Index for poems and notes

Biographies

For general list, see 20-7648

For biographical stories, see 20-7697-98, under Stories about men and women, and Hero stories

Biology. The science of life. It treats of organisms including the origin, development, structure, functions and distribution of plants and animals.

See Cell, Living; Life; Physiology; Protoplasm

Biot, J. B., French chemist, 15-5482

Biplanes, see Airplanes

Birch trees

* account of, 12-4247, 4255

catkins of, 17-6273

description and picture, 13-4634

graceful shape, 13-4642

how to tell wood of, 6-2048

use by Indians, 12-4378

Picture, 12-4255

Bird-cherry, flower

Picture (in color), 14-4992

Bird houses

directions for making, 1-341

feeding houses, with pictures, 13-4837

made from candy pail or orange crate, 17-6146

Bird of Paradise, account of, 8-2894, 2896

Pictures, 8-2893; (in color) 10-3622; 12-4372

Birds

* Our feathered friends, 8-2757-62

groups or classes

* Birds that cannot fly, 13-4655-57

* Crow and his family, 8-2889-96

* Cuckoos, 10-3497-3502

* Day birds of prey, 10-3753-60

* Ducks and geese, 11-3881-90

* Herons, storks and cranes, 11-4005-12

* Larks and their friends, 9-3133-40

* Parrots and owls, 10-3613-20

* Peckers, humming-birds and hornbills, 9-3365-7

* Pheasants and their allies, 12-4363-68

* Pigeons and doves, 12-4283-88

* Poultry, domestic, 12-4491-94

* Sea birds and their inland kin, 11-4121-30

* Starlings, finches and buntings, 8-2967-76

* Warblers, babblers and chatterers, 9-3277-88

groups, geographical

Australia, 7-2472

Hawaii, 15-5450

North America

* northern part, 13-4759-66, 4829-44

* southern part, 14-5017-25

* western part, 14-5133-48

balance, well-developed organ of, 10-3427

Christmas tree for, how to make, 7-2381

development

early form, archæopteryx, 1-94; 2-634; 5-1546;

8-2758

prehistoric forms, 8-2758

relation to reptiles, 1-258

distribution in North America, 13-4759-60

eggs, see Eggs—birds' eggs

extinct forms, 1-94

feather collections, 14-5005

feeding-houses, with pictures, 13-4837

footprints, tracing, with picture, 3-1024

houses, see Bird houses

imaginary, 1-355

* Jack Miner and the birds, 8-2813-18

length of life of, 1-185

migration of, 8-2762

return to same place, 8-2814, 2816

nesting-boxes, how to make, 18-6637

nests, see Nests

origin of, 1-258

protection of, 9-3278

sanctuaries

directions for making, 8-2818

Jack Miner's sanctuary, 8-2814-18

seeds scattered by, 3-1086

sense of balance of, 10-3427

song of, 9-3133, 3140

students of

John J. Audubon, 19-7052

Alexander Wilson, 19-7051-52

toy bird that turns around, 6-2264

tracks of, 3-1024

value to man, 8-2760, 2762

as insect-destroyers, 9-3288

wings, variations in, 14-5005

See also names of birds

Poems about

Answer to a Child's Question, by S. T. Cole-

ridge, 1-324

Birds, by R. H. Stoddard, 8-2764

Birds in Summer, by Mary Howitt, 13-4744

GENERAL INDEX

Birds—Poems about (continued)

- Burial of the Linnet, by Mrs. J. H. G. Ewing, 14-4956
 Caged Bird, by W. L. Bowles, 12-4270
 Canadian Song-Sparrow, by Sir James Edgar, 10-3482
 Dove, by John Keats, 3-1142
 Horned Owl, by Barry Cornwall, 15-5523
 Lark, by Thomas Heywood, 8-3002
 Nightingale and Glow-worm, by William Cowper, 2-606
 O Swallow, Swallow, Flying South, by Lord Tennyson, 1-326
 Ode to a Nightingale, by John Keats, 5-1886
 Owl, by Lord Tennyson, 6-2153
 Owl-Critic, by J. T. Field, 7-2640
 Parrot, by Thomas Campbell, 4-1384
 Poet and the Bird, by Mrs. E. B. Browning, 11-4033
 Raven, by E. A. Poe, 18-6753
 Robert of Lincoln, by W. C. Bryant, 15-5523
 Robin Redbreast, by William Allingham, 1-324
 Secret Song, by E. R. Macdonald, 8-2902
 Skylark, by James Hogg, 3-1142
 Song of Birds, by H. W. Longfellow, 14-5131
 Stormy Petrel, by Barry Cornwall, 14-5130
 To a Skylark, by P. B. Shelley, 16-6021
 To a Skylark, by William Wordsworth, 11-4034
 To a Waterfowl, by W. C. Bryant, 17-6379
 To the Cuckoo, by William Wordsworth, 3-2033
 To the Nightingale, by John Milton, 14-5238
 To the Skylark, by William Wordsworth, 7-2529
 Were I a Birdie Too (German folk-song), 7-2366

Questions about

- Does a bird always sing the same song? 5-1606
 How does a bird know how to build its nest? 14-5220-21
 What bird has the longest wings? 8-2720
 What does a bird sing about? 10-3579
 Why do birds cast their feathers every year? 17-6290
 Why does a bird forsake its nest if its eggs are touched? 17-6175
 Why does a flying bird not fall to the ground? 7-2611
 Why have the eggs of birds so many colors? 3-1116
 Why must we cut the claws of caged birds? 12-4400

- Pictures, see articles above, marked with star.*
 All are illustrated
 brain of, 8-2943
 nests, 8-2971
Pictures (in color), 8-2897-2900; 9-3129-32, 3281-84; 10-3621-24; 12-4369-72; facing 4492, facing 4493; 13-4841-44; facing 14-5133, facing 5140

- Bird's-eye**, flower, 14-4980
Bird's-eye maple, wood, 12-4508
Bird's-eye primrose, *see* Primrose—bird's-eye
Bird's-foot, flower
Picture (in color), 14-4984
Bird's-foot trefoil, note on, 14-4975
Picture, 14-4975
Bird's-nest, flower
Pictures (in color), 14-4987, 4992
Birds of the Southern province, * 14-5017-25
Birds that cannot fly, * 13-4655-57
Birkeland, Kristian, inventor, 16-5804
Birkenhead. Important port in Cheshire, on the Mersey, opposite Liverpool. It has over 170 acres of docks and about 10 miles of quays; shipbuilding is important, and there is a great transit trade.
Birkenhead, ship, wreck of, 3-888
Picture, by T. M. Hemy, 3-886
Birmingham. Largest city of Alabama, with steel, iron and cotton industries. One of the great new industrial cities of the South. Surrounded by vast deposits of coal and iron, it is one of the chief steel-producing cities of the world. Other industries are active and there is a large trade in lumber.
Birmingham. Largest English city after London, covering 68 square miles. The centre of the Midland iron, steel and coal trades, it has a great variety of manufactures, especially of

Birmingham (continued)

- hardware; the machinery, rubber, motor, chocolate, glass and jewelry industries are all important. Here Priestley, Boulton, Watt, Murdoch, and Baskerville the printer lived and worked.
Birs Nimrud, mound near Babylon, 2-659
Picture, 2-660
Birth stones, origin and list of, 19-7225
Birthright
Question about
 What does birthright mean? 15-5519
Biscay, Bay of. Wide bay between Spain and France, notorious for its stormy weather. Here are the ports of Lorient, Nantes, La Rochelle, Rochefort and Bordeaux in France, and San Sebastian, Bilbao, Gijon and Santander in Spain.
Biscoe, John, antarctic explorer, 14-5090
Biscuits, plants, *see* Trumpets
Bishop, Sir Henry, composer of music, 10-3669
wrote music for Home Sweet Home, 18-6510
Bishop, William A., Canadian aviator, 17-6292-93
Bishop's cap, flower, description, 17-6279
Biskra. Algerian tourist and health resort on the fringe of the Sahara.
Bismarck, Otto Eduard Leopold, Prince von
 influence in German history, 11-3970, 3972
Pictures
 portrait by von Lenbach (graveure), 8-2863
 at proclamation of William I as Emperor, 12-4169
 concluding Peace of Versailles, 11-3969
Bismarck. Capital of North Dakota, on the Missouri River. Near by is Fort Lincoln, whence General Custer started the disastrous expedition which ended in the destruction of his forces. Bismarck controls considerable river trade in coal, grain, hides, etc.
Bismarck, former name of ship Majestic, 12-4428
Bismarck Archipelago, population, and nation ruling, 9-3186
Picture, native house, 9-3303
Bismuth (Bi). One of the chemical elements, a brittle reddish white metal crystallizing in rhombohedrons. It occurs native in veins, and also in combination with other metals, from which it is obtained by roasting and smelting. It is used in the formation of alloys, and its salts are used in medicine, in calico-printing and in the manufacture of cosmetics, glass, etc.
Bison, European, or aurochs, 4-1260
Picture (graveure) 4-1265
See also Buffaloes, American
Bispham, David (1857-1921). American singer.
Bistort, Alpine, flower
Picture (in color) 15-5610
Bites, treatment for, 11-4082: 16-5981
Bitter, Karl, Austro-American sculptor, 14-4940
Bitter-root, flower, description, 18-6653
Picture, 18-6654
Bitterling, fish, and mussels, 15-5541
Bitterns, birds, 11-4007; 14-5020
Picture
 sun bittern, 8-2756
Pictures (in color), 9-3129; 10-3624
Bittersweet, non-poisonous vine, account of, 13-4782
Picture, berries, 13-4781
Bittersweet (woody nightshade), poisonous plant, 14-4976
 description of, for game, 16-5771
Pictures, 14-4977; (in color), 13-4880
 berries (in color), 11-4028
Bitterwood tree, account of, 8-2911
Bivalves, class of molluscs, 19-6884
Bivar, Rodrigo Diaz de, *see* Cid, The
Biwa, Lake, Japan, 2-572
Bizet, Georges, French musical composer, life and work, 19-6925
Picture, portrait, 19-6912
Björnson, Björnstjerne, Norwegian novelist, 19-7013
Picture, portrait, 19-7009
Black, William. Scottish novelist; born, Glasgow, 1841; died, Brighton, 1898.
See also 11-3897
Black, color, relation to light and heat, 14-5086
Black alder, shrub, account of, 13-4783
Black bryony, *see* Bryony, Black
Black cohosh, 16-5728
"Black death," caused by bubonic plague, 15-5486
 effect on English art, 6-1999
 in England, 5-1682

GENERAL INDEX

- Black Dwarf**, by Scott, note on, 11-4071
Black dwarfs, homes of, 5-1656
Black Forest, Germany, note and picture, 12-4165
Black Hole of Calcutta, 8-2826
Black list. A list of persons thought deserving of censure; especially, a list of persons classified as bad debtors made for the protection of tradesmen and employers.
Black moss, account of, 9-3268
Picture, 9-3260
Black Prince, *see* Edward, the Black Prince
Black Sea. Inland sea between Russia, Turkey, Bulgaria and Rumania, occupying 150,000 square miles. Communicating with the Sea of Marmora by the Bosphorus, it is fed by the Danube, Dnieper, Don, Dniester and Bug, its waters being brackish and abounding with fish. Odessa, Kherson, Nikolaiev, Sebastopol, Batum, Trebizond, Sinope, Varna and Constantza are the most important ports.
Black skimmer, bird, description, 14-5018
Black snake, account of, 15-5413-14
Black snakeroot, 16-5728
Black walnuts, *see* Walnuts
Blackbeard, nickname for pirate Edward Teach, 2-554
Blackberries, account of, 15-5608
note on, 16-5726
Pictures, 16-5726; (in color), 11-4028
Blackbirds, account of, 13-4766
cow blackbird, *see* Cowbirds
of western North America, 14-5140-41
red-winged, 13-4766
Picture
red-winged blackbird, 13-4833
Picture (in color), 9-3130
Blackboard, how to make, 14-5006
Blackburn, Grace, Canadian author, 14-5110
Blackcap, bird, description, 9-3277-78
Picture (in color), 8-2899
Blackcock, European grouse, 12-4364
Blackfish, account of, 6-2220
Blackfoot Indians, treachery in trading, 12-4342
Blackie, Stuart, *see* Poetry Index for poem and note
Blacking box, directions for making, 7-2378-79
Blackmail. The extortion of money by threats of exposure to disgrace or blame. It is punishable by law.
Blackmore, R. D. English novelist; born, Longworth, Berkshire, England, 1825; died, Teddington, 1900. Wrote Lorna Doone.
Blacksmiths
Poem about
Village Blacksmith, by H. W. Longfellow, 1-227
Question about
Why does a blacksmith's anvil have a tapered end? 14-5225
Blackstone, Sir William (1723-80). A celebrated English jurist whose great work is *Commentaries on the Laws of England*. An American edition was printed in 1884.
Blackthorn, tree, description, 12-4383, 4392
Pictures
fruit (in color), 11-4027
shrub, flower and leaf, 12-4392
Blackwell, Elizabeth, first woman doctor in U.S., 14-5271
Bladder-wrack, description of, for game, 16-5771
Bladdernut, note and picture of fruit, 15-5606
Bladderwort, plant
insects used as food, 1-330
leaves absorb water, 2-613
structure, 4-1278
Blaine, James Gillespie (1830-93). A brilliant and popular American politician; Republican candidate for the presidency, 1884; Secretary of State, 1881 and 1889-92.
Blair, Montgomery, postmaster-general
Picture, portrait, in group, 7-2426
Blake, Eobert, English admiral, life, 11-3852
victories at sea, 6-1978-79
Picture, portrait, 11-3845
Blake, William, poetry of, 12-4228
visions of, 11-3836
See also Poetry Index, for poems and notes
Poem about
Blake, by Edmund Gosse, 8-2764
Blakelock, Ralph, American painter, 10-3455
Picture, Indian Encampment (gravure) 10-3462
Blanchard, Thomas, inventor, 19-7214
Blanche of Castile, queen of France, and her son, Louis IX, 16-5818
Blank verse, characteristics, 1-100, 216
used by Marlowe, 3-1124
Blantyre, Nyasaland, 9-3052
Blarney. Smooth, flattering talk. The Blarney Stone in Blarney Castle, Ireland, is said to make those who kiss it skillful in the use of flattery.
Blasco Ibañez, *see* Ibañez
Blashfield, Edwin H., American painter, 10-3453
Picture, Academia (gravure), 10-3462
Blaxland, Gregory, Australian explorer, 3-862
Bleaberry, Scotch name for bilberry, 15-5608
Bleaching of linen, in factories, 9-3323
of pulp, in paper-making, 7-2448-50
Bleak, fish, description, 15-5634
Bleeding, how to stop, 4-1210-11; 14-5000-01; 15-5599-5600
kinds, 14-5000-01
operation, 13-4828
Question about
Cannot we bleed unless a hole is made in our veins? 13-4596
Bleeding heart, flower
description, Pacific coast variety, 19-6932
Blenheim, Battle of
Poem about
Battle of Blenheim, by Robert Southey, 2-483
Picture, of soldiers, 6-2099
Blennerhassett, Thomas (1750-1625). An English poet and historian who wrote *The Second Part of the Mirror for Magistrates*.
Blenny, fish
Pictures (in color) 16-5787
butterfly blenny, 16-5782
Yarrell's blenny, 16-5782
Blenny family of fishes, 16-5776
Bleriot, Louis, flew across English Channel, 1-172
Picture, monoplane, 1-175
Blewett, Mrs. Jean, Canadian author, 14-5110
See also Poetry Index for poem and note
Blicher, Steen, Danish poet, 19-7101
Blind man's breakfast, game, 18-6519
Blind man's stab, game, 18-6519
Blind partners, game, 18-6519
Blind spot, in eye, how to find, 8-2746
Blindman's buff, game, 8-2743
Blindness
Braille type for blind, 15-5364
Poems about
Blind Boy, by Colley Cibber, 3-1007
On His Blindness, by John Milton, 17-6380
Questions about
Are all animals blind at birth? 18-6558
Why are blind people so quick at hearing? 6-2125
Blinkers
Question about
Why does a horse wear blinkers? 9-3356
Block and tackle. Pulley blocks with rope, etc. for hoisting or hauling.
Block game, with dominoes, 12-4375
Block printing, directions, 2-617
Blockades, as cause of War of 1812, 5-1703-04
in American Civil War, 7-2438
of England, by Napoleon I, 10-3571
Bloemfontein. Capital and cathedral city of the Orange Free State, South Africa.
Blois, Château of, 18-6494
Pictures, 18-6499
Blondel, French minstrel
story about. The song that found a king, 16-5827-30
Blondes, explanation of coloring, 19-7246
Blondin, Charles, tight-rope walker, 10-3426
Picture, 10-3427
Blood
blood plates, 3-937
** cells, red*, 3-803-06
made in bones, 3-804; 5-1561
use, 3-804
Pictures, 3-803, 805, 935
** cells, white*, 3-935-36
destroying germs, picture, 3-934
nucleus of, 2-662-63
Pictures, 3-934-35
circulation
** account of heart and circulation*, 4-1209-13, 1325-31
capillaries, *see* Capillaries
diagram, 4-1211
discovery by Harvey, 8-2725-27

GENERAL INDEX

Blood—circulation (*continued*)

- extra supply to balance cold, 6-2124
- first seen in capillaries, 13-4670
- See also Arteries; Bleeding; Veins
- clotting, 3-937
- colors of, 11-4135
- hot-blooded and cold-blooded animals, 1-52
- of insects, 17-6066
- poisons in, 3-806
- purifying of, 4-1212
- specific gravity, 14-5038
- Questions about
 - Do any people have blue blood? 11-4135
 - Is our blood cold when we feel cold? 7-2485
- Picture, network between arteries and veins, 5-1805

Blood-pheasant, description, 12-4365

Blood-pressure, influenced by pituitary gland, 9-3223-24

Bloodhounds, hunting dogs, 2-718

Pictures, 2-719; (graveure) 2-713

Bloodroot, plant, 17-6275

Picture, 17-6277

Bloodstone, account of, 19-7227

Picture (in color), facing 19-7225

Blotter, how to make, 12-4380

Blotting-paper

Question about

Why does blotting-paper absorb ink? 10-3578

Blount, A. E., developed varieties of wheat, 4-1470

Blow-flies, damage by in Australia, 18-6724

insect enemies of, 18-6724

Blowpipe. An instrument for directing a jet of air or other gas into a flame so as to concentrate and increase the heat. There are mouth blowpipes and blowpipes worked by bellows, compressed gas, etc. The oxyhydrogen blowpipe produces the most intense heat.

Blubber, fat of whales, 6-2216

Blücher, Gebhardt Leberecht von, Prussian commander at Waterloo, 6-2208

called "Marshal Forward," 11-3968

Picture, after Waterloo, 6-2198

Blue Bird, by Maeterlinck, summary and quotations, 14-5069-74

Blue blood

Question about

Do any people have blue blood? 11-4135

Blue Boy, by Thomas Gainsborough, 6-2111

Picture (in color), 7-2340

Blue-eyed grass, flower, description, 18-6568

Blue flag, see Fleur-de-lis

Blue grass. The genus *Poa* with bluish green culms. Kentucky is called the "Blue-Grass State," from its blue-grass region, where fine horses are bred.

Blue jays, birds, see Jays

Blue laws. Puritanical laws supposed to restrict the freedom of members of the community. The name has been specially applied to the early regulations in force in the colony of New Haven. The name is said to have originated from an edition on blue paper.

Blue-print pictures, how to make, 15-5331-32

Bluebell of Scotland, harebell, 17-6125, 6128

Bluebells

English name for squills, 17-6128, 6130

name for drooping forget-me-not, 18-6665-66

name for wild hyacinths, 17-6126

Blueberries, 6-2064, 2068; 13-4776-77

Picture, 13-4777

Bluebirds, account of, 13-4840

belong to thrush family, 9-3140

of western North America, 14-5137-38

Pictures, (in color) 10-3621; 13-4842

Indian fairy bluebird, 12-4370

mountain bluebird, facing 14-5133

western bluebird, facing 14-5133

Bluebottles, flies, 17-6420

Bluebottles, or cornflowers, flowers, 14-4978, 4980

Picture, 14-4978

Bluecoat school, London, founded by Edward VI, 5-1817

Bluefish, account of, 16-5775

Bluejays, see Jays

Blushing

Question about

What happens to our skin when we blush? 1-188

Bo tree, account of, 9-3261-62

Boa constrictor, snake, 15-5412-13

Picture, 15-5411

Boadicea, queen of British tribe, 4-1320; 13-4584-85

Poem about

Boadicea, by William Cowper, 1-322

Pictures, 13-4583; statue, 13-4585

Board, Ernest, artist

Picture, John and Sebastian Cabot, 1-254

Board of Health. A number of persons appointed or elected to sit in council (at a table or board) to regulate the conditions for public health within a certain area.

Boarfish. Picture (in color) 16-5783

Boarhounds, German, see Great Dane

Boars, Wild, ancestor of domestic pig, 5-1717

characteristics, 5-1717-18

damage done in India, 5-1718

Pictures, 5-1721

Boas, snakes, account of, 15-5412-13

Boatbills, birds

Picture, Central American (in color) 10-3624

Boats

balance, in water, 14-5177, 5179-80

fishing schooners, 11-4052

flat-bottom, how to build, with pictures, 16-5983-84

leaking, how to prevent, 18-6645

submarine, see Submarine boats

toy

made from cork, 2-514-15

made from fruits, nuts, etc., 11-4083-84

made from paper, 4-1396

made from tinfoil and camphor, 15-5595

See also Battleships; Ships

Pictures

ancient Egyptian models, 3-807, 809

Chinese, 2-430

delivering mail, 8-2661

ferry-boat, 8-2949

fishing schooner, 11-4058

fishing trawler, 11-4056

flatboat, Ohio River, 6-1909

with lateen sails, 7-2540

Bob, dog, story of bravery, 16-5736

Bobac, animal, 3-1132

Bobolinks, birds, account of, 8-2970

in southern U. S., 14-5023

Poem about

Robert of Lincoln, by W. C. Bryant, 15-5523

Picture, 8-2975

Bobwhites, see Quails

Boccaccio, Giovanni, Italian author

life and writings, 17-6152-53

Picture, portrait, 17-6149

Böcklin, Arnold, Swiss painter, 8-2852

Boer War, 1899-1902, 7-2299-2300; 9-3050

Boerhaave, Hermann, physician, 8-2727-28

Boers, in South Africa

and the Zulus, 9-3048, 3050

founded Orange Free State and Transvaal, 9-3048

Boethius. Roman statesman, philosopher, writer of commentaries on the works of Aristotle; born about 475; put to death, 524, by Valentinian III.

Boethus, sculptor, statues of children, 12-4467-68

Picture, statue, boy and goose, 12-4463

Bog-bean, see Buck-bean

Bog-moss, description, 16-5727

roots of, 2-614

value to man, 5-1627

Bog-myrtle, note and picture, 16-5733

Bogotá. Capital of Colombia, on a lofty and healthy Andean plateau. Founded in 1538, it has a 16th-century cathedral and many fine buildings, and was once regarded as the chief centre of culture in South America.

Bohemia. Formerly an independent kingdom, and later a province of the Austrian Empire, but now the chief division of Czechoslovakia.

A tableland girdled by mountain ranges, it has immense agricultural and mineral resources and many valuable industries, notably manufactures of linen, woolen goods and glass. Prague is the capital of Czechoslovakia; other important towns are Pilsen, Budweis and Reichenberg, while Carlsbad, Marienbad and Teplitz are famous for their mineral springs. The people are mainly Czechs.

relations with Austria, 17-6192

See also Czechoslovakia

Bohemund I of Tarentum, in First Crusade, 7-2585-86

Bohm, Max, American painter, 10-3456

Picture, Evening Meal (gravure) 10-3464

GENERAL INDEX

- Böhme, Jacob**, German writer, 17-6268
Boiardo, Matteo, Italian author, 17-6154
Boileau-Despréaux, Nicholas, French critic, 18-6711
Picture, portrait, 18-6714
Boiling
Questions about
 Can anything boil when it is cold? 8-3014
 What makes the kettle boil? 12-4277
 When water is boiling, why can it not be made hotter? 13-4595
 Why does boiling make an egg hard? 13-4827
 Why does boiling milk flow over the top of the saucepan? 7-2609
 Why does the kettle sing? 11-4134
Boiling-point, of various substances, 8-3014
 valves with atmospheric pressure, 13-4595
Boisé. Capital of the State of Idaho, on the Boise River, on which is the celebrated Arrow-rock Dam, the highest in the world. The city is the centre of an agricultural and mining district. It was originally the military post of Fort Boise.
Boisé River dam, Idaho, 7-2546
Picture, 7-2552
Boker, George Henry, *see* Poetry Index, for poem and note
Bokhara. Central Asian Moslem state under Russian domination; area, 83,000 square miles; capital, Bokhara. Very fertile in places, it produces cotton, silk, wheat, hemp and tobacco.
Boldini, Giovanni, Italian painter, 8-2854
Boleslas the Brave, king of Poland, 13-4680
Boleyn, Anne, wife of Henry VIII
 Wolsey and More against marriage, 5-1816
Picture, portrait (graveure) 5-1821
Bolivar, Simon, South American leader, 19-6864
 * life, 13-4591
 first president of Republic of Colombia, 19-6975
Picture, portrait, 13-4583
Bolivia, South America
 * history and description, 19-6978, 6980
 named for Bolivar, 13-4591
 war with Chile, 19-7036, 7038
Pictures, 19-6859
Boll-weevil, *see* Cotton boll-weevil
Bollworm, destroys cotton, 18-6722
 pink bollworm came from Egypt, via Mexico, 18-6734
Bologna, Giovanni da, Italian sculptor, 13-4608
Pictures
 statue of Æolus (gravure) 13-4614
 statue of Mercury (gravure), 13-4609
Bologna. One of the largest cities of northern Italy, manufacturing macaroni, sausages, soap, textiles and glass. A very ancient place, it is surrounded by lofty medieval walls nearly six miles in circumference; it has a hundred churches, a cathedral and the oldest university in Europe.
 school of painting, 3-1108
Bolometer, to measure heat, 17-6080
Bolsheviks. Russian for "Majority party" which in 1917 strove to create a Communist republic in Russia. Its main theories were the conquest of society by the proletariat class, the power of revolutionary instinct, and opposition to the dictatorship of a minority.
Bombay. Second city and port of India, on Bombay Island. It is the distributing centre and cotton market for western India, and has also salt, dyeing, metal and tanning trades. Sixty-two languages are spoken, but two-thirds of the people are Hindus. Near by are the Cave Temple of Elephanta and the Parsee Tower of Silence.
 given to Charles II of England, 8-2698
Bombs, depth, use by navy, 18-6816
Bombyx mori, name of silkworm, 15-5308
Bonaparte, Charles Louis Napoleon, *see* Napoleon III
Bonaparte, Francis Joseph Charles, son of Napoleon I, 1-150-51
Picture, portrait, 1-151
Bonaparte, Napoleon, *see* Napoleon I
Bonaparte, Napoleon Joseph Charles Paul, Prince Imperial, killed in South African war, 10-3379
Bonaparte family
 Napoleon I gave thrones to, 6-2205; 10-3571
Bonar, Horatius, hymn-writer, 12-4437
See also Poetry Index for poem and note
Bonded warehouse. A warehouse in which goods on which the duties are unpaid are stored under bond in the custody of the importer and the customs officers.
Bone, Muirhead, British etcher, 8-2860
"Bone china", how made, 5-1664
Bones, blood-cells made in, 3-804
 broken, treatment, 11-4082; 13-4732-33
 camels' bones used for ivory, 5-1596
 * of human body, account of, 5-1673-77; 13-4618-19
 * structure and uses, 5-1559-63
See also Skeleton
Boneset, plant, 16-5728
 southern species, description, 19-7092, 7094
Picture and note, 16-5729
Bongo, animal, 4-1443
Bonheur, Rosa. French animal-painter; born, Bordeaux, 1822; died, Paris, 1899. Her Horse Fair is in the Metropolitan Museum of Art.
 place in art, 7-2370
Picture, Horse Fair, 7-2369
Bon Homme Richard, ship, fight with Serapis, 17-6326, 6328
Boniface, St., life of, 13-4862
Picture, cutting down sacred tree, 13-4861
Bonington, Richard, British painter, 6-2232, 2234
Pictures
 A River Scene, 6-2232
 Fishing Boats, 6-2233
Bonitos, fishes, 16-5775
Picture (in color) 16-5781
Bonn. Beautiful German Rhine town, birth-place of Beethoven. Here are an ancient five-towered minster and a famous university, containing among other things an extensive library, a museum of Roman relics and a splendid observatory.
Picture, cathedral (graveure) 12-4177
Bonnat, Léon, French painter, 8-2856-57
Picture, Portrait of Leon Cogniet (gravure) 8-2863
Bonnet, dolls, how to make, 12-4501
Bonnett, Daniel, Huguenot refugee, 3-1036
Bonneville, Benjamin L. E., discovered Great Salt Lake, 6-1916, 1918
Bonnie Blue Flag, Confederate song, origin, 18-6514
Bonnie Prince Charlie, *see* Stuart, Charles Edward
Booby, bird, account of, 11-3884
Book cover, how to make, 12-4380
Book-lice, insects, 17-6068
Book of Common Prayer, arranged by Cranmer, 5-1817
Book of Hours, in French illuminated manuscripts, 4-1231
Book of Kells, Irish illuminated manuscript, 2-582
Picture, page from, 3-2941
Book of the Dead, Egypt, 1-290-91; 3-814; 15-5463
Picture, page from (in color), 1-294
Bookbinding, description, 3-1067
 directions, with pictures, 12-4263
Pictures, 3-1067
Bookcase, directions for making, 8-2877
Booklets, how to make, 2-750
Books
 Babylonian and Assyrian, ancient libraries of, 2-656-58
 cylinders and tablets, 2-650
 directions for making, 8-2881-82
 booklets, how to make, 2-750
 like Japanese booklets, 3-1156
 with pictures, 12-4261-63
 first one made in America, 18-6509
 history
 * How man learned to write, 10-3545-50
 * Men who gave us printing, 9-3381-90
 how to cover with paper, 19-7079
 how to mend, 13-4737
 * manufacture, 3-1053-67
 parts of, 12-4261
 right spirit in reading, 1-81
 value and beauty of, 1-79-81
See also Libraries; Manuscripts, Illumination of
See also 20-7688, for accounts of famous books
Questions about
 How many books are there in the world? 2-463
 Why do bookmakers gild the tops of books? 18-6552

GENERAL INDEX

Books (continued)

- Pictures*
 ancient Irish book-covers, 8-2941
 Assyrian book, clay cylinder, 10-3545
 making of a book, 3-1060-67
 pages from old manuscripts (in color) 3-477-80
- Boom** on ship, explanation of, 11-4086-87
- Boomerang**
Question about
 Why does a boomerang come back? 14-5081
Picture, native holding, 3-860
- Boone, Daniel**, pioneer
 * life and work, 6-2189-95
 settled in Kentucky, 6-1906
- Pictures*
 portrait, 6-2193
 cabin at Femme Osage, 6-2191
 rescuing girls from Indians, 6-2191
- Bonesborough**, Kentucky, settlement of, 6-2194
 siege of, during Revolution, 6-2194
- Booth, John Wilkes**, actor, assassinated Abraham Lincoln 3-1047; 7-2442
- Booth, William**
Picture, portrait, with mother, 15-5617
- Boots**, description, 18-6446
- Boracic acid** or **boric acid** (B(OH)₃). A white crystalline substance, obtained from salts which appear in solution in the hot lagoons of Tuscany or the volcanic Lipari Isles and from Borax Lake in California. Used as a preservative, in coloring gold, making flint glass, etc., and medicinally as an antiseptic.
- Borage**, flower
Picture (in color) 14-4989
- Borage family**, in botany, 13-4875
- Borchgrevink, Carsten Egeberg**, antarctic explorer, 14-5091-92
Picture, portrait, 14-5089
- Bordeaux**. Fourth largest French city, with a fine harbor on the Garonne. The chief centre of the wine trade, it also has a thriving ship-building industry and an enormous general trade. Its magnificent Gothic cathedral was partly built by the English during the Hundred Years' War. Roman remains include the ruins of a large amphitheatre.
 western port, 11-3821
Picture, cathedral of St. André, 10-3575
- Borden, Sir Robert Laird**, premier of Canada, 4-1491
- Borden condensing process** for milk, 10-3508
- Boreas**, north wind, in mythology, 9-3234
- Borecole**, cabbage, *see* Kale
- Borglum, Gutzon**, American sculptor, 14-4939
Picture, Horses of Diomed, statue, 8-2703
- Borgognone, Il (Ambrogio da Fossano)**, Italian painter, 3-1107
Picture, Marriage of the two St. Catherines, 3-1105
- Boris**, king of Bulgaria, 14-4926
- Borneo**, British part, account of, 9-3186
- Borromeo, Carlo**, cardinal, heroism during plague, 10-3466-67
Picture, statue of, 10-3466
- Borrow, George**, author, 11-3999
- Borsippa**, ancient city, site, with picture, 2-660
- Boru**, *see* Brian Borohme
- Borzoi**, Russian wolfhound, description, 2-717
Picture (gravure) 2-714
- Bosboom, Jehan**, Dutch painter, 8-2854
- Bosnia**. Formerly Turkish, and later part of the Austrian Empire, 1908-18, but now united with Jugo-Slavia. One-third of the people are Mohammedans, the remainder being divided between the Roman Catholic and the Greek Orthodox churches, but they are mainly of Slavonic stock. Sarajevo is the capital.
 access to sea, 17-6346
 and Austria, 17-6194, 6196
- Bossuet, Jacques Bénigne**, French writer, 18-6714
Picture, portrait, 18-6713
- Boston**. A centre of culture and education in Massachusetts, famous in the political, commercial, musical and literary history of the United States. An important port and manufacturing city, and financially influential. Large wool and fish trade. Export trade second only to New York.
 description and history (brief), 17-6177
 Faneuil Hall, note and picture, 18-6832
 Museum of Fine Arts, founding, 9-3334

Boston (continued)

- Question about*
 Why is Boston called the "Hub of the Universe"? 17-6177
- Pictures*
 Bunker Hill Monument, 17-6177
 Christian Science Mother Church, 14-5266
 Old North Church, 18-6830
 Old State House, Faneuil Hall, Paul Revere's house, 18-6832
 State House and Common, 11-3782
- Pictures* (gravure)
 Old North Church, 18-6685
 Public Library, 18-6687
 State House, 18-6685
 Trinity Church, 18-6686
- Boston Massacre**, 1770, 4-1162
Picture, 4-1160
- Boston Port Bill**. A bill passed by the British Parliament in 1774 to punish the people of Boston for their destruction of imported tea lying in their harbor. It provided for the removal of the seat of government to Salem and the removal of the port to Marblehead until certain conditions had been complied with. The bill stirred up great sympathy among the colonists and food was sent to the city.
- Boston Tea Party**, 4-1162
- Bostwick, Helen B.**, *see* Poetry Index for poem and note
- Boswell, James**, and Samuel Johnson, 5-1868
 note on life of Johnson, 5-1728
- Bosworth Field, Battle of**, 5-1686
- Bot-flies**, 17-6421-22
- Botany**. The scientific study of plants, which to-day includes a group of sciences. Taxonomy is the classification of plants; in this subject Linnæus excelled. Morphology treats of the structure and development of plants. Anatomy, aided by the microscope, deals with plant tissue; Physiology with the life of plants, as to how nutrition is absorbed, etc.; Ecology is the branch of plant physiology which treats of the plant in relation to its environment; Pathology tells of plant diseases; Bacteriology treats of the plants known as bacteria.
 experiments to try, 2-616
 game, botanical puzzles, 16-5771
 study of, Asa Gray's work, 19-7054
See also Collecting; Flowers; Fruit; Grains.
 * Plants; Seeds; Shrubs; Trees; also names of plants, fruits, and flowers
 For list of main articles, *see* 20-7599-7602
- Botany Bay**, Australia, first settlement by convicts, 3-861-62; 7-2464
 named by Captain Cook, 7-2464
- Botha** (1862-1919). Great Dutch South African statesman, first prime minister of the Union of South Africa in 1910. During the World War he led expeditionary force against rebels in Union and German Southwest Africa, organized a force against German East Africa and an expeditionary unit for Europe. Represented South Africa at the Peace Conference, 1919.
- Bothnia, Gulf of**. Northern arm of the Baltic, between Sweden and Finland.
- Bothwell, James Hepburn**, 4th earl, marriage to Mary Queen of Scots, 12-4214
- Botta, Paul Emile**, French explorer, explorations in Nineveh, 2-654
- Böttger, Johann Friedrich**, discovered clay for porcelain, 5-1664
- Botticelli, Sandro (Alessandro Filipepi)**, Italian painter, 2-699
- Pictures*
 Madonna and Child, 2-690
 Spring (gravure) 2-693
 Virgin with Jesus (gravure) 2-695
- Bottle tree**
Picture, 9-3267
- Bottles**, how made, 18-6746, 6748-49
 how to clean, 15-5335
 how to remove glass stopper, 19-7079
 musical instruments made from, directions, 17-6387
- Questions about*
 What makes water gurgle when it comes out of a bottle? 11-3979
 Why does a full bottle keep hot longer than one half-full? 10-3475
- Bouchardon, Edmé**, French sculptor, 13-4703
- Boucher, François**, French painter, 5-1881
Picture, Pastoral Idyl, 5-1875

GENERAL INDEX

- Boucicault**, wrote version of *Wearin' o' the Green*, 10-3610
- Bougainville, Louis Antoine de**, in Samoa, 10-3592
- Boughton, George Henry**, Anglo-American painter
Pictures
Marvell shaking hands with Milton, 4-1237
Milton's First Love, 4-1234
- Boulogne**, French port on the English Channel, with an important passenger traffic with Folkestone and a large North Sea fishery. The old town stands on a hill above the harbor, and is still surrounded by high walls. It has a cathedral.
- Boulton, Matthew**, maker of steam-engine, 3-990; 5-1612
- Bounce about**, game, 3-1029
- Bouncing Bet**, flower
Picture (in color) 13-4879
- Bounty**, ship, mutiny of, 9-3300
- Bourdelle, Emile-Antoine**, French sculptor, 13-4706
- Bourdillon, F. W.**, see Poetry Index for poem and note
- Bourges cathedral**, 17-6159
- Bourinot, Arthur S.**, Canadian author, 14-5109
- Bourinot, Sir John**, Canadian author, 14-5109; 15-5367
- Bourseul, Charles**, and the telephone, 17-6184, 6242, 6246
- Bouts, Thierry (or Dierick)**, Flemish painter, character of painting, 4-1225
Picture, Portrait of a Man, 4-1228
- Bow**, of a ship, 14-5003
- Bow and arrow**
how arrow is driven, 12-4278
use of bow in making fire, 1-308
Poem about
Song of the Bow, by Sir A. C. Doyle, 9-3107
Question about
What makes an arrow fly? 12-4278
- Bow River dam**, at Bassano, Alberta, 7-2546
Picture, 7-2551
- Bowell, Sir Mackenzie**, premier of Canada, 4-1491
- Bowels**, structure, and digestive power, 6-2085
- Bowls**, magnified diagram of lining, 6-2083
- Bower birds**, account of, 8-2896
Pictures
in bower, 8-2895
regent bower bird (in color) 10-3624
- Bowers, H. E.**, on Scott's antarctic expedition, 14-5096
Picture, portrait, 14-5100
- Bowfin**, see Mudfish
- Bowles, William Lisle**, see Poetry Index for poem and note
- Bowling**
Question about
What makes the ball swerve in a bowling game? 18-6552
- Bowls**, ball game, directions for playing, 4-1400
- Bowman, Louise Morey**, Canadian author, 14-5110
- Bowring, Sir John**, hymn-writer, 12-4440
Picture, portrait, 12-4439
- Bows and arrows**, see Bow and arrow
- Bowsprit** of a ship, 14-5003
- Box elder**, a kind of maple, 12-4248
- Box furniture**, directions for making, 3-893-94; 6-2262-64; 7-2377-79; 8-2875-79
Louise Brigham's development of, 3-891-93
Pictures, 3-891-93
- Boxer rebellion**, China, in 1900, 2-433
Japan and, 2-566
- Boxes**
directions for making
general-utility box, 7-2377-78
mitre-box, 17-6263
nail-box, 17-6262-63
vortex box, 13-4846
directions for nailing, 8-2741
wall cabinet for cigar boxes, 15-5597
See also Box furniture; Cigar boxes
- Boxing the compass**. Nautical term for giving all the points of the compass in regular order; hence, in politics, and so on, to try all sides and end where one began.
- Boy Scouts**
hints for awkward situations, 12-4376
- Boy Scouts of America**
* account of, 12-4451-58
Scout Law, 12-4454, 4456
Pictures, 12-4451-58
- Boycott**. To combine against any person, withholding social or business intercourse from him and compelling others to do the same. From Captain Boycott, a land agent in Ireland who was so treated in 1880.
- Boyle, John J.**, American sculptor, 14-4939
- Boyle, Robert**, chemist, electrical discoveries, 4-1244; 16-5666
law of compressed gas, 15-5289
Picture, portrait, 4-1243
- Boyle, Sarah**, see Poetry Index for poem and note
- Boyne River**, 8-2934
- Boys**
Poems about
Barefoot Boy, by J. G. Whittier, 4-1517
Only a Boy, 11-4030
Question about
Why does a boy's voice break and not a girl's? 4-1230
- Bozzaris, Marco**
Poem about, and note
Marco Bozzaris, by Fitz-Greene Halleck, 8-2765
- Brabanconne, La**, national song of Belgium, 10-3612
- Brabant**. Ancient province of the Netherlands, now divided between Holland and Belgium. It contains Brussels and Antwerp.
- Bracelets**, for dolls, directions and picture, 4-1399
- Bracken**, fern
Picture (in color) 10-3728
- Braddock, Edward**, British general expedition against Fort Duquesne, 3-780-82
- Bradford, William**, governor of Plymouth colony, 2-548
History of Plymouth Plantation, 12-4445-46
- Bradford-on-Avon**, England
Picture, old Saxon church, 4-1437
- Bradley, James**, astronomer, 1-284
Picture, portrait, 1-281
- Bradshaw, John**, in English Civil War, 11-3852
Picture, portrait, 11-3845
- Brady, Nicholas**, versified the psalms, 12-4437
- Braga**, Portugal, population, 14-5188
Picture, Church of the Good Jesus, 14-5191
- Braganza**, Portugal. *Picture*, 14-5190
- Bragg, Sir William**, discoveries with X-rays, 16-5944
- Brahe, Tycho**, astronomer, life and work, 1-205-06
Pictures, 1-202-04
- Brahmanism**, early religion of India, 9-3085
architecture, 15-5471
- Brahmaputra**. Great river of Asia. It rises in the northernmost chain of the Himalayas and flows through Tibet, Assam and Bengal into the Bay of Bengal, being navigable in places in Tibet at 13,800 feet above sea-level. Its discharge in Assam is estimated at 140,000 cubic feet a second, nearly double that of the Ganges. There is great development of agricultural resources within its basin. 1,680 miles.
mud carried by, 7-2537-38
- Brahmins**, Hindu caste, 8-2702
- Brahms, Johannes**, German musical composer, 19-6923, 7151-52
Pictures, portraits, 19-6912, 7153
- Braille, Louis**, invented Braille type, 15-5364
- Braille type**
Question about
What is the type known as Braille? 15-5364
- Brain**
* Forest of nerves within us, 8-2837-43
* Mystery of the brain, 8-2943-47
* Parts of the brain, 9-3059-62
account of, 8-2839-41
cells, varieties of, 16-5957-58
centres of
music-hearing centre, 9-3062
sight centre, 9-3062
speech centre, 9-3062
sweat centre, 4-1419
word-hearing centre, 9-3061
word-seeing centre, 9-3062
connection with eye, 11-3801
control of body
blood supply controlled by, 4-1213
breathing controlled by, 4-1330
heart controlled by, 4-1212-13
discoveries of, Ferrier and Horsley, 15-5492
dreaming, activity in, 9-3099

GENERAL INDEX

Brain (continued)

- during sleep, 4-1356
- effect of alcohol on, 8-2682-83
- in animals and man, beginning at simplest, 8-2945-46
- in lower animals, 8-2838
- memory and, 11-4067-68
- protected by skull, 5-1674
- shape not corresponding to skull, 4-1355
- size, variation of, 8-2944
- size in man requires different skull from animals, 5-1673
- structure of, 8-2682-83, 2840-41
- surface of, 8-2943-44
- thinking brings blood to, 4-1213
- Questions about*
- Can a brain ever get filled up? 16-5957
- Does the brain need food? 5-1811
- Does the shape of the brain mean anything? 4-1355

Pictures

- diagrams, 8-2839, 2945
- gray-matter, 9-3061
- of various animals, and man, 8-2943
- Brainerd, David.** American missionary to the Indians; born, Haddam, Connecticut, 1718; died, Northampton, Mass., 1747.
- Brakes**
- air-brakes, invention of, 19-7212
- Bramante,** sometimes called Lazzari, (Donato d'Agnolo), Italian architect, 17-6300
- work in Rome, 17-6309
- Bramble**
- Pictures* (in color)
- flower of, 13-4879
- stone bramble, fruit of, 11-4028
- Brambling,** bird, 8-2973
- Brandels, Louis D.,** note and portrait, 19-7165
- Brandes, Georg,** literary critic, 19-7012
- Picture,* portrait, 19-7009
- Brandy-bottle,** yellow water lily, 16-5870
- Brandywine, Battle of.** Fought in Pennsylvania during the American Revolution between the British under General Howe and the Americans under General Washington. The Americans were defeated, and Howe was enabled to occupy Philadelphia. In this engagement Lafayette was seriously wounded.
- effect of battle, 4-1168
- Brandywine Creek.** Stream, principally in southeastern Pennsylvania, flowing into Delaware River.
- Brangwyn, Frank,** British painter, 8-2860
- Brantly, E.,** inventor, 17-6246
- Picture,* portrait, 17-6246
- Brant,** goose, description, 11-3888
- Bras d'Or Lake,** Cape Breton Island, 1-106
- Brass.** An alloy of copper and zinc used in commerce as cast, sheet, wire and tubes. The proportions of its parts vary according to its use. The method for producing brass from copper and zinc was patented by James Emmer-son in 1781. Brass has a fine yellow color, takes a high polish, is harder than copper, and therefore resists wear better. It tarnishes on exposure to damp unless protected by varnish or veneer. Some of the important kinds have special names, as, Arch's metal, Bristol brass.
- Brass instruments, Musical,** 19-6899
- Bratislava,** Czecho-Slovakia, 17-6342
- Picture,* 17-6343
- Bravery,** stories of, *see* Stories, Golden deeds
- Brazil**
- coffee-growing, 6-2178
- commerce and resources, 19-7046
- * description, 19-7042, 7046
- discovery, Spanish and Portuguese claims, 19-7040
- education, 19-7046
- * history, 19-7040, 7042
- became independent of Portugal, 14-5186
- claimed for Portugal in 1500, 2-677
- empire established, 19-7042
- republic established, 19-7042
- World War, 19-7042
- population, 5-1606; 19-7046
- stamps, rare, 16-5887
- Pictures*
- capital of, 19-7041, 7047
- coffee-growing, 6-2177-81
- Declaration of Independence of Brazil, 19-7043
- Santos and São Paulo, 19-7048

Brazil nuts, 6-2278, 2280

Pictures, 6-2275; (in color) 8-3000

Brazilwood, tree, produces dye, 9-3154

Brazos River. American river rising in the Staked Plain, Texas. Flows into Gulf of Mexico. 850 miles.

Bread

- * Bread by which we live, 7-2423-25
- * The World's bread and butter, 1-371-73
- black, made from rye or barley, 1-372
- difference between brown and white, 7-2424
- Graham bread more wholesome than white, 8-2802
- how made, 1-371-73; 2-626
- leavened and unleavened, 1-371
- yeast, effect of, 5-1628

Question about

Why is new bread more indigestible than old? 7-2486

Pictures, baking in electric oven, 7-2423

modern bakery, 1-379-80

outdoor oven, Quebec, 8-2955

Breadfruit

Picture (in color) 8-3000

Breakspear, Nicholas, *see* Adrian IV

Breakwater. A structure built out into the sea or lake to break the force of waves and provide calm water inside for anchorage of vessels. Extensively used in Europe and Asia and on the Great Lakes.

Breath

Question about

Why do we not see our breath on a warm day? 16-5842

Breathing

- * Life and the lungs, 4-1325-31
- affected by age, temperature, food, etc., 4-1330
- artificial, for drowned person, 17-6147-48
- by lungs and by gills, 11-3841
- centre in brain, 4-1330
- effect on blood, 3-937-38
- exercises, 15-5332
- of fishes, 8-2716; 10-3732
- of insects, 17-6064, 6066
- of plants, 11-4094
- of whales, 6-2214
- process of, 4-1330
- relation to atmospheric pressure, 15-5285
- See also* Lungs
- Questions about*
- Do seeds breathe just as people do? 15-5519-20
- Does a rock breathe? 9-3102
- If fish breathe under water, why cannot we? 14-5221
- Why do we get out of breath when we run? 7-2610

Breckinridge, John C., vice-president of U. S.

candidate for president, 1860, 7-2430

Picture, portrait (gravure) 11-3948

Breeches Bible, 14-4950

Brehon Laws, Ireland, 8-2929, 2932, 2934

Bremen. Ancient German free city and port, on the Weser. It has considerable manufactures and a great transatlantic trade, the largest ships being able to reach Bremerhaven, its outpost. Part of the old ramparts still remains, and there is an old cathedral.

Bremen, Junkers plane, 1-182, 184

Bremer, Fredrika, Swedish author, 19-7014

Brendan, St. (about 484-578). Irish abbot who is said to have presided over 3,000 monks in the 6th century. He is famous for his seven years' voyage, in which, according to legend, he and 17 others set out from Kerry in a coracle in search of the western Land of Promise of the Saints.

Brenner Pass. Lowest pass over the Alps and first to have a railway. It connects the Austrian and the Italian Tyrol, and since Roman times has been the chief highway between Germany and Italy. 4,500 feet.

Picture, 17-6198

Brescia. Railway centre in Lombardy, Italy, with manufactures of iron and steel goods, woollens, wine, linen and silk. Over 2,000 years old, it is surrounded by walls and dominated by a castle; it has an ancient cathedral, a magnificent town hall, and many fine churches, some of them decorated with paintings by Tintoretto and Paolo Veronese.

school of painting, 3-1107

Picture, 13-4577

GENERAL INDEX

Breslau. German cathedral and university city on the Oder, and capital of Silesia. A great industrial centre, it makes woollens, linen, cotton, soap and machinery.

Picture, Town Hall (grave) 12-4176

Brest. One of chief French naval ports, in Brittany. It has important fisheries, considerable manufactures, and one of the finest harbors in Europe.

western port, 11-3821

Bretons. Celtic inhabitants of Brittany, and similar in race and dialect to the Welsh. They are of the round-headed Alpine type of the Caucasian division of peoples.

Brett, Jacob, laid first cable from England to France, 12-4294

Brett, John Watkins, laid first cable from England to France, 12-4294

Brewer, Ebenezer Cobham, see Poetry Index, for poem and note

Brian Boroihme, king in Ireland battles with Danes, 8-2930, 2932

Brian Boru, see Brian Boroihme

Bricard, Xavier, French painter, 8-2858

Picture, Mother and Child (grave) 8-2862

Bricklaying

Question about

What does the pattern in a brick wall mean? 3-876

Brickmaking, in ancient Babylon, 2-652

Bricks, blowing over (trick), 3-1025

clay, directions for making, 9-3248

seeing through, trick, 12-4377

Questions about

Why did the Egyptians use straw for their bricks? 12-4505

Why is there a hollow in the face of a brick? 16-5962

Bride of Lammermoor, by Scott, note on, 11-4071

Bridge of a ship, 12-4418; 14-5002

Bridge-board, game, 8-2744

Bridge of Sighs, Venice, 4-1458

Picture (grave) 4-1468

Bridgeport. Busy manufacturing and commercial city of Connecticut, on an inlet of Long Island Sound.

Bridges, Robert, poet laureate, 12-4233

Bridges

cantilever, 1-28

Quebec Bridge, 1-29, 39

concrete, how made, 7-2309

* history and construction, 1-27-42

how built, 1-30-31

iron, first use of, 1-27-28

natural

Natural Bridge, Utah, note and picture, 18-6425

Natural Bridge, Va., note and picture, 14-4900

Pont Saint-Bénézet at Avignon, 18-6494

suspension

Clifton, England, 1-28

in New York, 1-28

longest in world, 1-34

transporter bridge, note and picture, 1-36

Questions about

Does a bridge expand in the sun? 15-5517

How can thin iron rods carry a suspension bridge? 12-4280

Why do soldiers break step while crossing a bridge? 7-2485

Why is straw sometimes hung under bridges? 10-3477

Pictures

Arab bridge, in Spain, 14-5052

bascule bridge at Chicago (grave) 19-7116

bridge of boats, 8-2695

cantilever bridge, Alaska, 10-3585

concrete railway bridge near Orebro, 15-5305

Hansa bridge at Stettin (grave) 12-4177

in Minneapolis, 15-5280

over Skuru Sound, 15-5306

railway bridges, 2-412

Rialto bridge, Venice (grave) 17-6304

Roman bridge at Pergamum (grave)

15-5355

* showing construction, 1-30-32

* various types, 1-26-27, 33-41

Bridges in piano, 5-1796

Bridgetown, capital of Barbados, 9-3191

Brigewater Canal, England, 13-4786

Brig, sailing vessel, rig of and picture, 11-4087

Brigantine, sailing vessel, rig of and picture, 11-4087

Brigham, Louise, and box furniture, 3-891-93

Bright, Charles Tilston, and Atlantic cables, 12-4294, 4296

Bright, John. English statesman and orator, leader of the Anti-Corn-Law League; born, Greenbank near Rochdale, 1811; died, 1889.

Picture, portrait, with parents, 15-5619

Brill, fish, 16-5779

Picture, 16-5779; (in color) 16-5784

Brimstone, or sulphur (S). A natural acidic element occurring in large quantities in various sulphids and sulphates. It is found in volcanic regions, as in Sicily, in vast beds, and in non-volcanic regions, as in Louisiana. Melted out from accompanying earthy matter, it is then distilled; first vapors are condensed as a lemon-yellow powder called flour of sulphur, the remainder is condensed as a liquid, which is cast into sticks forming roll sulphur, or brimstone. Used in medicine as a laxative, in commerce in making gunpowder, matches, fireworks, sulphuric acid, for vulcanizing rubber and for bleaching.

Brindisi. One of the most important Adriatic ports of Italy, with mail and passenger services to Egypt, India, Turkey and Greece. It has a cathedral, a massive medieval castle and a large export trade.

Brindley, James, founder of English canal system, 13-4786; 19-7205

Picture, portrait, 19-7201

Brisbane. Capital and chief port of Queensland, Australia, on Brisbane River. A healthy and well-built city, it has two cathedrals and a university, and manufactures leather, soap and tobacco. Sheep, frozen meat, tallow, coal and wool are exported.

coal in neighborhood, 7-2468

Bristol. Chief port of southwest England, and one of the most historic. Standing 7 miles from the mouth of the Avon, it has fine docks at Avonmouth accessible to the largest vessels, and its industries include manufactures of tobacco, cocoa, chocolate and soap. There is a cathedral, founded in 1142, while the Church of St. Mary, Redcliffe, is one of the finest Perpendicular buildings in England. Other prominent buildings are the university and the Cabot Tower.

cathedral, 16-5970

Picture, cathedral (grave) 16-5976

Britain, see Britons; England

Britain, and later Europe, * 13-4853-58

Britannia Bridge, Wales, description, 1-27-28

British and Foreign School Society, 14-5254

British Columbia. Canadian western province; area, 356,000 square miles; capital, Victoria, on Vancouver Island. Lying west of the Rockies, it has a mild and healthy climate, and is noted for its fruit-growing industry. The rivers, the Fraser especially, are the source of a great salmon-canning trade, while the hills are rich in coal, copper, zinc, gold, silver, lead and timber. Vancouver, terminus of the C.P.R., is the second seaport of Canada.

joins Dominion of Canada, 4-1489-90

Pictures

paper plant, 7-2452

water-power pipe-line, 15-5436

British East Africa, former name of Kenya Colony, 9-3054; 16-6811

British Empire, see England—colonies and dependencies

British Grenadiers, song, age of, 10-3608

British Guiana, see Guiana, British

British Honduras, see Honduras, British

British Isles, climate affected by trade winds, 8-2666

See also England

Question about

How many islands are in the British Isles? 18-6554

British Museum, London

ancient letters of English kings in Manuscript room, 5-1566

* history, 12-4358, 4360

Picture, 12-4355

British North America Act, 1867, 4-1488-89

reasons for, and provisions, 5-1833-40

British South African Company, 9-3052

Britons, early inhabitants of England

* before and during Roman period, 4-1317-24

GENERAL INDEX

Britons (continued)

- ships of, 11-3914
Pictures, 4-1321, 1431
Brittany. Northwest peninsula of France, formerly an independent duchy. Famous for its beauty and the quaint customs of its people, mostly peasants and fisherfolk, it contains the beautiful old towns of Rennes, its old capital, Dinan, and Vannes, many small seaside resorts, and the ports of Nantes, Brest, Lorient, St. Nazaire and St. Malo.
 language like the Welsh, 11-3822
 settled by ancient Britons, 11-3821
Picture, 11-3817
Brittany, Duke of, and John of Montfort, 12-4226
Brittleness, cause of, 3-879
Broadbills, birds, account of, 9-3288
Pictures, 9-3287; (in color) 10-3623
Broadcasting stations, 17-6368, 6370
Pictures, 17-6365-67
Broadcloth. A fine smooth-faced woolen cloth usually of double width (hence the name) in which the hairs of the wool and warp are entangled so that the cloth does not unravel when cut. The term has also been applied to a cotton fabric.
Broca, Paul, French anthropologist, discovered speech area in brain, 9-3062
Brocade. A silk fabric woven with gold and silver or ornamented with raised flowers, foliage, etc. The East has long been famous for its brocades. Made in Europe since 1400.
Broccoli, cauliflower, 7-2618
Picture, 7-2619
Brock, Sir Isaac, in War of 1812, 5-1705
 killed at Queenston, 1812, 3-945
 marched to resist Hull's invasion of Canada, 1812, 3-945
Brockton, Mass., note and picture, 11-3781
Broke, Sir Philip Bowes Vere, captain of the Shannon, 5-1704
Broken Hill, Australia, silver mine, 7-2470
Broker. An agent or middleman employed to make contracts for other persons in trade, commerce and navigation for a fee or compensation generally called brokerage. There are various kinds, as stock brokers, insurance brokers, real-estate brokers, ship brokers, literary brokers, etc.
Brome, grass
Pictures, with notes, 10-3656-57, 3659
Picture (in color) 10-3522
Bromide. A compound of bromine with another element. Bromine (Br) is an elementary chemical substance discovered by Balard in 1826, which occurs in combination with silver, with alkalies, in sea and mineral waters. The most important bromide is that of potassium (K Br), which is extensively used in medicine. Another important bromide is that of silver, which, being sensitive to the action of sunlight, is much used in photography.
Bronchi, tubes of the lungs, 4-1328
Brontë, Anne, life and writings, 11-3894-95
Brontë, Charlotte, life and writings, 11-3894-96
Picture, portrait, with parents, 15-5618
Brontë, Emily, life and writings, 11-3894-96
Brontë sisters, *picture*, 11-3895
Bronx, New York, origin of name, 17-6207
Bronze. An alloy of copper and tin with sometimes small proportions of other elements, as zinc and phosphorus. In bronze the alloy shrinks and occupies less space than the total of the separate metals. It is harder than copper and tin. Easy to work with the tool, it is the best material for repoussé work, and has been in use for decorative purposes from the earliest times. Proof against the moisture of the air, bronze is used in bell-casting, for the mounting and supports of astronomical instruments, and for cannon.
Bronze Age, art of, 1-289-90
 barley used in, 5-1852
Bronzino, Il (Angelo Allori), Italian painter, portraits, 3-958
Pictures
 Ferdinand de Medici (graveure) 3-963
 Grand Duchess Eleanor (graveure) 3-964
 Maria de Medici, 9-3074
 Piero de Medici (graveure) 3-964
Brooke, Sir James, life, and work in Sarawak, 9-3186

- Brooke, Rupert**, English poet, 12-4234
 life and writings, 17-6393-94
See also Poetry Index for poem and note
Brooke, Stopford Augustus. Irish author and literary critic; born, Letterkenny, County Donegal, 1832; died, Ewhurst, Surrey, 1916.
See Poetry Index for poem and note
Brooke, Sir William O'Shaughnessy, and submarine cable, 12-4293
Brooklime, plant, note on, 16-5878
Picture, 16-5878; (in color) 16-5883
Brooklyn, N. Y., museums and public gardens, 17-6218
Brooklyn Bridge, New York City, description, 1-29, 34
Picture, 1-34
Brooks, Phillips, bishop of Massachusetts, 12-4438
Brooks, Thomas, painter
Picture, Shakespeare before Sir Thomas Lucy, 2-725
Brooks
Poems about
 Baby and the Brook, 13-4600
 The Brook, by Alfred Tennyson, 1-101
 Laughing Brook, by Elizabeth Scantlebury, 6-2153
Broom, plant
 butcher's broom, *see* Butcher's broom
 note on, 17-6129
 on Pacific coast, 19-6936
Pictures, 17-6129
 common broom, flower (in color) 14-4983
 fruit (in color) 11-4027
Brothers of St. Lazarus, missionaries, work of Vincent de Paul, 5-1733
Brothers' war, *see* Civil War, American
Broussa, Turkey
Pictures, 13-4810
Brown, Arnesby, English painter, 8-2860
Brown, Arthur, aviator, 1-178
Brown, Charles Brockden, American author, 13-4625
Brown, E. W., study of moon, 10-3536
Brown, Ford Madox, English painter, 6-2236
Pictures
 Chaucer Reading his Poems, 1-298
 Christ washing Peter's feet (graveure) 6-2237
 King Lear Renounces his Daughter Cordelia, 3-987
 Portrait of Oliver Cromwell, 11-3849
Brown, Henry Kirke, American sculptor, 14-4936
Brown, John, raid on Harper's Ferry, 7-2430
Brown, Thomas Edward, English poet, 12-4232
See also Poetry Index for poem and note
Brown thrasher. Sometimes improperly called Brown thrush, is a wren common in the United States, ranging north to Canada and west to the Rockies. About a foot long, it is reddish brown above and cream spotted with brown below. A very fine songster and mimic.
Pictures (in color)
 bird, 13-4843
 egg of, 13-4844
Brown University, Providence, R. I., formerly Rhode Island College, 12-4308
Picture and note, 12-4312
Browne, Charles Farrar, *see* Ward, Artemus
Browne, Frances, Irish writer, 9-3197
 Cobblers and the Cuckoo, story from Granny's Wonderful Chair, 9-3347-50
Browne, William, *see* Poetry Index for poem and note
Brownell, Franklyn, Canadian painter, 10-3709
Brownies, good-natured elves
 Brownies and the farmer, story, 18-6506-07
Browning, Mrs. Elizabeth Barrett, * 10-3687-91
See also Poetry Index, for poems and notes
Pictures, portrait, 10-3687
 scenes connected with her life, 10-3689
Browning, John M., inventor of machine gun, 19-7210
Browning, Robert, * 10-3687-91
See also Poetry Index, for poems and notes
Pictures, portraits, 10-3687
 scenes connected with his life, 10-3689
Brownlow, E. B., *see* Poetry Index for poem and note
Browntail moth, how introduced into U. S., 18-6734
Picture (in color), 18-6534
Bruce, Blair, Canadian painter, 10-3700

GENERAL INDEX

- Bruce, Sir David**, medical discoveries, 15-5492
Picture, portrait, 15-5481
- Bruce, James**, 1811-63, *see* Elgin, 8th earl of
- Bruce, James**, 1730-94, African explorer, 2-466
Picture, portrait, 2-465
- Bruce, Robert**, king of Scotland, 12-4207, 4210
 at battle of Bannockburn, 5-1680
Poem about
 King Bruce and the Spider, by Eliza Cook, 15-5521
Pictures, scenes from his life, 12-4207
- Bruce, Thomas**, *see* Elgin, 7th earl of
- Bruce, W. S.**, arctic explorer, 13-4722; 14-5094
- Brucine**, obtained from nux vomica tree, 8-2912
- Brueghel, Jan**, the elder, Flemish painter, 4-1227
Picture, Festive Board, 7-2567
- Brueghel, Pieter**, the elder, Flemish painter, 4-1227
Picture, children at play, 4-1226
- Bruges, Belgium**, 15-5496, 5500-01
Pictures, 15-5503
 belfry, 15-5506; (gravure) 17-6166
 Town Hall, 15-5506
- Bruises**, treatment for, 11-4082
- Brunel, Borneo**, 9-3186
- Brunel, Isambard Kingdom**, invented shield for building tunnels, 5-1618; 19-7206
Picture, portrait, 17-6397
- Brunel, Sir Marc Isambard**, inventor and engineer, 19-7206
- Brunelleschi, Filippo**, Italian architect, 5-1738-39
Pictures
 dome of cathedral, Florence (gravure), 5-1747
- Brunettes**, explanation of coloring, 19-7246
- Bruno, St.** Eleventh-century saint who was born at Cologne and became a high church dignitary. In 1080, however, he decided to go into retirement with six others, and, the Bishop of Grenoble having given him the Valley of Chartreuse, he founded there the austere Carthusian order.
- Brunswick**. Picturesque old cathedral city of northern Germany, with pianoforte, machinery and chemical manufactures. Said to have been founded about 861 by Bruno, son of the Duke of Saxony.
- Branton, Sir Lauder**, 8-2730
- Brush, George de Forest**, American painter, 10-3453-54
Picture, In the Garden (gravure) 10-3464
- Brussels, Belgium**, architecture, 15-5501
 St. Gudule, church, 17-6161
Pictures, 15-5505
 Palace of Justice, 15-5495
- Brussels, ship**. *Picture*, 12-4188
- Brussels sprouts**, development of, 7-2616
Picture, 7-2619
- Brutus, Lucius Junius**, Roman noble, 4-1200-03
- Brutus, Marcus Junius**, aided in death of Caesar, 3-984; 4-1368
- Bryan, Rebecca**, married Daniel Boone, 6-2192
- Bryan, William Jennings** (1860-1925). American politician. Secretary of State in cabinet of President Wilson. Ran for president unsuccessfully three times: 1896, 1900, 1908.
- Bryant, William Cullen**, American poet, 13-4629-30
See also Poetry Index, for poems and notes
Picture, portrait, 13-4629
- Bryce, James**. English writer, 11-4003
Picture, portrait, 11-2999
- Brymner, William**. Canadian painter, 10-3702
- Bryn Mawr College**
Picture, Rockefeller Hall, 12-4313
- Bryony**. Black plant, note on, 17-6129
Pictures, 17-6129; fruit (in color) 11-4026
- Bryony**. White
Picture, fruit of (in color) 11-4025
- Bryophytes**, group of plants, 10-3724
- Bubalis**, fish
Picture (in color) 16-5781
- Bubonic plague**, how spread, 17-6424
 microbes discovered, 15-5486
- Buccaneers** of West Indies, 19-7099-7100
- Buchan, John**, *see* Poetry Index for poem and note
- Buchanan, James**, President of U. S. administration, 7-2429-30; 11-3942
 life, outline of, 11-2853-53
Picture, portrait (gravure) 11-3947
- Buchanan, Robert**, author, 11-3898
 poetry of, 12-4231
See also Poetry Index, for poems and notes
- Bucharest**. Capital, and commercial and railway centre of Rumania, on the Dambovitza tributary of the Danube. It has a university and a fine cathedral.
 population, 14-4922
Pictures, 14-4931
 cathedral, 14-4928
- Buck-bean**, plant, Gentian Family, 11-4020
 description, 16-5728; 17-6280
Pictures, 16-5726; fruit (in color) 11-4026
- Bucket-shop**. A place where bets are made in the form of orders on current prices of stocks, grain, oil, etc. No actual buying or selling of the property is made, and legally these transactions are wagers, and the bucket-shop an illegal institution.
- Buckeye**, variety of horse-chestnut, 12-4382
- Buckingham, George Villiers**, 1st duke of, friend of Charles I, 11-3845
- Buckland, William**, English scientist, influence on Lyell, 2-592
- Buckthorns**
 sea, note, with picture, 14-5164
Pictures (in color), 11-4024
 alder buckthorn, fruit of, 11-4025
 sea buckthorn, fruit of, 11-4023
- Buckwheat**, account of, 5-1856
- Budapest**. Capital and railway centre of Hungary, on either bank of the Danube. One of the finest cities of Europe, it is the depot for the immense Hungarian agricultural trade; it has engineering works and a university.
Pictures, 17-6338-45
 Parliament House, 17-6191
- Buddha, or Gautama**, founder of Buddhism
 * life and teachings, 9-3085-88
 image at Kamakura, 2-570
See also Buddhism
Pictures
 statues of, 2-569; 9-3085-86; (gravure) 9-3096
 teaching his pupils, 9-3087
- Buddhism**
 architecture, in India, 15-5470
 in China, 2-429, 436
 in India, under Asoka, 8-2822
 in Japan, 2-562
 in Tibet, 18-6590-91
 teachings and influence, 9-3088
- Buddleia**
Picture of flower (gravure) 19-7179
- Budgerigars**, birds, 10-3618
Picture, 10-3615
- Budget**. Annual financial statement made by the British Chancellor of the Exchequer to the House of Commons. It includes a general view of the finances of the country with proposed measures for the year. The United States adopted a budget in 1921. Canada follows British procedure.
- Buds**
 frogbit multiplies by, instead of seeds, 4-1277
 opening of leaf-buds, 2-504-06
Pictures, stages in opening of bud, 2-505
- Budweis, or Budejovice**. Cathedral and manufacturing city of Bohemia, Czecho-Slovakia.
- Buena Vista**, Battle of, 6-1920
- Buenos Aires**. Capital and chief port of Argentina, on the La Plata. Founded in 1535 by Pedro de Mendoza, its growth has been enormously rapid since 1860, and it is now the largest city south of the Equator. More than four-fifths of the exports of Argentina pass through it, principally frozen meat, wool, grain and live stock. The city is well laid out and has many fine buildings, including the great cathedral modeled after the Madeleine at Paris.
 founding of, 19-6862
Pictures, 19-7044-45
 cathedral, 19-7037
 early in 19th century, 19-7033
 Retiro Station, 2-420
- Buff with a wand**, game, 18-6519
- Buffalo**. Industrial and commercial centre, in New York State. Standing at the eastern end of Lake Erie, it is one of the largest ports on the Great Lakes, with an immense distributing trade in grain, flour, cattle, iron, coal and lumber. The manufactures are varied and important.
 entrance to Erie Canal, 13-4885-86

GENERAL INDEX

- Buffaloes**
in Europe, Africa, and Asia, 4-1264
toy, how to make, 3-895
value, 4-1264
- Buffaloes, American**, 1-159
extermination by whites, 4-1263
in Canada, 4-1263-64
in United States, present herds, 4-1264
Pictures,
in Yellowstone Park, 2-732
Indian hunt, 6-1917
reserve in Canada, 4-1259
Picture (gravure) 4-1265
- Ruffiehead**, duck, 11-3889
- Buffon, Count Georges de**. French naturalist;
born, Montbard, Burgundy, 1707; died, Paris,
1788.
- Bugle**, flower, note and picture, 14-4972
- Bugloss**, plant
viper's, 14-4974-75
Pictures
small bugloss (in color), 14-4984
viper's bugloss, 14-4975; (in color) 14-4993
- Building homes in the new land**, * 2-543-56
- Building the new nation**, * 5-1695-1707
- Buildings**
decay affected by atmosphere, 8-2716
need for steel framework, 4-1215
See also Architecture
Questions about
Can the foundations of a building be
relaid? 13-4596
What were the first buildings like?
8-3009-12
Which is the best stone for building? 8-2716
- Bukovina**, and Rumania, 14-4922
- Bulbuls**, birds, 9-3285-86
Picture (in color) 12-4369
- Bulfinch, Charles**, American architect, 18-6680-81
- Bulgaria**. A Finno-Ugrian race of the Northern
Mongolic division of peoples, the Bulgars came
from the area between the river Kama and the
Caspian Sea, and laid waste the areas over
which they passed. They mingled with the sur-
rounding Slav populations, and a predominantly
Slav people now inhabits Bulgaria.
access to Mediterranean, 14-4926
agriculture, 14-4926
description, 14-4926
* history, 14-4922, 4926
in World War, 14-4926
map, 14-4923
stamps, rare, 16-5887
territorial losses since World War, 18-6462
Pictures, 14-4925, 4929
- Bulkheads** in a ship, 14-5004
- Bull, John**, *see* Poetry Index for poem and note
- Bull bat**, name for nighthawk, 9-3372; 13-4831
- Bull fight**. A fight in which men torment and
fight with bulls for the amusement of the crowd.
Bull fights were common in Greece and Rome;
they are to-day in Spain and Mexico, and in a
modified form in Portugal. *Plaza de Toro* is the
arena; *picadores* the horsemen; *banderilleros* the
footmen; *matador* the swordsman; *capas* the red
cloaks of the banderilleros.
Picture, painting by Goya, 4-1499
- Bull Run**, first battle of, 7-2433
- Bullace**, tree
Picture of fruit (in color) 11-4023
- Bulldogs**, 2-718
Picture (gravure) 2-714
- Bullen, Frank**, author, 11-4002
- Bullfinches**, birds
Pictures, nest and eggs, 8-2971; bird (in color)
9-3131
- Bullfrogs**, period of growth, 15-5454
Picture, 15-5452
- Bullheads**, fishes, description, 15-5632
- Bullock, William**, invented a printing-press,
9-3390
- Bullocks**
Pictures
bullock cart, 3-919
working in rice-field, 5-1857
- Bulls**
bull-grappling in ancient Crete, 2-448
See also Cattle
Question about
Why does red irritate a bull? 15-5517
- Buluwayo**. Commercial capital of southern
Rhodesia, in a gold-mining and grazing region.
- Bulwarks** of a ship, 14-5002
- Bulwer-Lytton, Edward George Earle**, *see*
Lytton
- Bumblebee flies**, 17-6423
- Bumblebees**, account of, 17-6228
Pictures, 17-6229; (in color) facing 18-6721
- Bumps** on skull, explanation, 5-1675
phrenology not true, 4-1355
- Bunce, William Gedney**, American painter,
10-3455
- Bunch-berry**, flower, description, 18-6568, 6571
Picture, 18-6571
- Bunch-flower**, bracted, description, 19-7094-95
Picture, 19-7095
- Bundesrat**. Name of the federal council of
the German Empire before November, 1918,
representing the various states.
- Bundy, Edgar**, artist
Pictures
Back from the Southern Seas, 14-5026
John Evelyn discovers the wood-carver
Grinling Gibbons, 5-1729
- Bunker Hill, Battle of**, 4-1164
- Bunker Hill Monument**
Picture and note, 17-6177
- Bunsen, Robert Wilhelm**, invented battery,
16-5671
- Bunsen cell**, description, 16-5671
- Buntings**, birds, 8-2974, 2976; 14-5145
of southern United States, 14-5024
Pictures
feeding young, 8-2974
nest and eggs, 8-2971
Pictures (in color)
cirl bunting, 9-3281
corn bunting, 9-3281
lazuli bunting, 12-4372; facing 14-5140
reed bunting, 8-2898
snow bunting, 8-2899
- Bunyan, John**, English author
* life and writings, 4-1477-80
* Pilgrim's Progress, quotations and summary,
15-5543-52
See also Poetry Index, for poems and notes
Pictures, scenes from his life, 4-1477, 1479
- Buoninsegna, Duccio di**, *see* Duccio di Buonin-
segna
- Buoy**. A floating object moored to the bottom
to mark a channel or point out the position of
something beneath the water. Buoys are of
different shapes and sizes according to their
purposes, as *can buoys*, in the form of a cylinder;
nun buoys, cone-shaped; *spar buoys*, spars, an-
chored at one end. Different colors mark differ-
ent locations and indicate different things.
There are bell-buoys and whistling buoys.
- Buoys** for cable laying
Picture, 12-4300
- Bur-reed**, note and picture, 16-5873
- Burbank, Luther**. American horticulturist and
botanist; born, Lancaster, Massachusetts, 1849;
died, 1926.
* life and work, 15-5381-86
plant-breeding of, 4-1388-90
Picture, portrait, 15-5383
- Burbot, European**, fish, 16-5780
- Burdock**, weed, description, 15-5390-92
Pictures, 15-5391; (in color), 14-4984
- Burghley, Lord**, *see* Burleigh
- Burgkmair, Hans**, German painter, 4-1344
Picture, Portrait of Martin Schongauer,
4-1346
- Burgos**, Spain, 14-5050
Pictures, 14-5045
cathedral (gravure), 17-6166, 6171
Gate of Santa Maria, 14-5047
- Burgoyne, John**, English general, surrender,
1777, 4-1168
- Burgundy**. Formerly a practically independent
duchy, and now a large district of eastern
France, celebrated for its red and white wines.
Its capital is Dijon in the Côte d'Or.
- Burgundy, Dukes of**, and the Netherlands,
15-5560
- Burke, Edmund**. Irish orator and political
writer. Born, Dublin, 1729; died, Beaconsfield,
1797.
Picture, at the trial of Hastings, 15-5515
- Burke, Robert O'Hara**, Australian explorer,
3-864
- Burke Bill**, 1906, about Indians, 19-7236
- Burleigh, William Cecil, Lord**, and Queen Eliza-
beth, 5-1818
Picture, portrait (gravure) 5-1821

GENERAL INDEX

- Burma.** Largest Indian province; area, 238,000 square miles; capital, Rangoon. Generally mountainous, especially in the Shan States; it has an enormously heavy rainfall, in places amounting to 228 inches. Immense crops of rice are grown in the Irrawaddy valley, while teak, petroleum, precious stones and ores are all large exports. Mandalay, Prome, Bassein, Lhamo, Pegu, Moulmein and Akyab are the chief towns. The climate is much affected by monsoons, and the wet and dry seasons bring about distinct alternations in the manner of living.
- Picture*
rubber plantation, 8-2789
- Pictures* (gravure)
approach to pagoda, Rangoon, 9-3096
doorway of Shwee Zedong temple, 15-5479
mosque at Akyab, 15-5478
temple at Kado, 9-3094
- Burne-Jones, Sir Edward**, English painter, 6-2236
- Pictures*
The Beguiling of Merlin (gravure) 19-6947
Circe (gravure) 9-3232
The Furies, 9-3225
King Arthur in Avalon (gravure) 19-6948
King Cophetua and the Beggar Maid, 2-734
Knights of King Arthur, tapestry (gravure), 19-6946
Mirror of Venus (gravure) 9-3231
Song of Love (gravure), 6-2239
- Burnet**, flower
- Pictures* (in color)
great burnet 14-4993
salad burnet, 14-4985
- Burnett, Mrs. Frances Hodgson**, author, 14-5015
- Burney, Fanny**, author, 5-1730; 6-2256
- Picture*, destroying manuscripts of stories, 5-1727
- Burnham, Daniel H.**, American architect, 19-7117
- Burns, James Drummond**, hymn-writer, 12-4440
See also Poetry Index for poem and note
- Burns, Robert**, poet
* Master of the people's songs, 6-2135-38
meeting with the boy, Walter Scott, 7-2626
See also Poetry Index, for poems and notes
- Poem about*
Incident in a Railroad Car, by J. R. Lowell, 9-3272
- Pictures*
portrait, 6-2136
portrait, with mother, 15-5615
birthplace of, 6-2135
Burns and Highland Mary, 6-2137
- Burns**, treatment for, 16-5980
- Burnside, Ambrose Everett** (1824-81). American soldier born in Indiana. He graduated from West Point in 1847 but soon resigned to become a manufacturer of firearms. He volunteered in 1861, and served creditably until he was, against his will, made commander of the Army of the Potomac; defeated at Fredericksburg; served to end of war; governor of Rhode Island, 1866-69; U.S. Senator, 1875-81.
at Fredericksburg, 7-2434, 2436
- Burnside**, American artist, frescoes in Capitol, 5-1534
- Burr, Aaron** (1756-1836). An American politician, vice-president of the United States 1801-05.
duel with Hamilton, 5-1703; 10-3458-59
plan for monarchy, 5-1703
Picture, portrait (gravure), 11-3948
- Burroughs, John**, naturalist, 19-7058
See also Poetry Index for poem and note
- Picture*, portrait, 19-7058
- Burrowing owls**, *see* Owls—burrowing
- Burton, Sir Richard Francis**, African explorer, 2-470-71
Picture, portrait, 2-465
- Burton, Robert**, English writer; born, Lindley, Leicestershire, 1577; died, probably Oxford, 1640; author of The Anatomy of Melancholy.
- Busby, Richard**, headmaster of Westminster, and Dryden, 4-1358
- Bush-honeysuckle**, *see* Diervilla
- Bush pigs** of Africa, 5-1720
- Bush-tits**, birds, 14-5139
- Bushbuck**, animal, 4-1443
- Bushel**, average number of grains, in cereals, 5-1852
- Bushmaster**, snake, 15-5416
- Bushmen**, in Africa, 9-3047
- Bushnell, David**, made early submarine, 1-197
- Bustards**, birds, 11-4009
Picture, 11-4005
- Butcher birds**, account of, 9-3138-39; 13-4836
- Butcher's broom**, plant, description, 17-6124, 6127
Pictures, 17-6127
fruit (in color), 11-4021
- Butter**
food value, 7-2325
how to make, 3-896
microbes that help make, 2-558
ways of making, 1-373
Pictures, butter-making, 1-381-84
- Butter-and-eggs**, *see* Toad-flax
- Butterbur**, plant
Picture (in color), 16-5883
- Buttercup Family**, in botany, 13-4872
- Buttercups**, account of, 17-6130
description, 15-5392
life-history of, 2-508
notes on, 15-5393; 17-6125
of Pacific coast, 19-6930
Suksdorf's buttercup, 19-6929-30
Poem about
Buttercups and Daisies, by Mary Howitt, 1-323
Pictures, 15-5393; 17-6125
stages in life history, 2-508-09
Suksdorf's buttercup, 19-6929
- Buttercups and bees**, game, 11-3855
- Butterflies**
* Butterflies and moths, 18-6525-32
eggs, 18-6526-27
have perfume, 18-6530
how differ from moths, 18-6525-26
life history of, 18-6527-30
making a collection, 10-3765-66
means of communication, 18-6530-31
migration of, 18-6526
tongues, length of, 5-1609
varieties, 18-6531-32
Poems about
The Butterfly and the Snail, by John Gay, 7-2638
The Butterfly's Funeral, 10-3644
To a Butterfly, by William Wordsworth, 6-2152
To a Butterfly, by William Wordsworth (another poem), 16-6024
- Pictures*
American butterflies (in color), 18-6533-34
European butterflies (in color), 18-6541-46
tongue, 1-218
tropical butterflies (in color), 18-6535-38
- Butterfly fish**
Picture (in color), 16-5788
- Butterfly needle book**, how to make, 16-5982
- Butterfly net**, how to make, 10-3765
- Butterine**, substitute for butter, 7-2325
- Buttermilk**, artificially made, 1-382
- Butternut tree**, 12-4512, 4514
Pictures, 12-4512, 4514
- Butternuts**, account of, 6-2276
- Butterscotch**, recipe for, 1-340
- Butterwort**, plant, insects as food for, 1-330, 332
Picture, 16-5726
- Buttonholes**, how to make, 1-339; 19-7079
- Buttons**, from shoe-lace, how to make, 17-6386
- Buttonwood trees**, *see* Plane trees
- Buttress** in Gothic architecture, 16-5968
- Buzzards**, birds, account of, 10-3756
turkey buzzards, 10-3760; 14-5021
Pictures, 10-3753
European buzzard (gravure), 10-3762
European buzzard (in color), 8-2900
honey buzzard (in color), 9-2282
- By-law.** A law or regulation made by a public or private corporation for the regulation of its own affairs and the government of its members. The by-laws of a municipal corporation are true laws, of private corporations rather agreements than laws in the true sense.
- Byrd, Commander Richard Evelyn**. American naval officer and aviator. Born in Virginia, 1890, descendant of William Byrd.
Antarctic expedition, 1-184; 14-5101
North Pole flight, 1-170, 181; 13-4722
trans-Atlantic flight, 1-181
Pictures
North Pole flight (gravure), 13-frontis.
with crew, trans-Atlantic flight, 1-183
- Byrd, William**, founder of Richmond, Virginia, as historian, 12-4445

GENERAL INDEX

- Byrd, William** (*continued*)
Picture (gravure), home, Westover, 18-6685
Byrd, William, English musical composer, 19-6914
 madrigals of, 16-5743-44
Question about
 What are William Byrd's eight reasons for singing? 16-5744
Picture, portrait, with Thomas Tallis, 19-6915
Byrom, John, *see* Poetry Index for poem and note
Byron, George Gordon, 6th lord Byron, poet
 life and work, 7-2490-91
 friendship with Shelley, 7-2492
See also Poetry Index, for poems and notes
Picture, portrait, 7-2488
Byron, John, discovered Gilbert Islands, 9-3302
Byzantine art
 * architecture, 16-5716-19
 * early Christian art, 2-576-81
 influence on early Italian painting, 2-691-92
 sculpture denounced by Christian sect, 12-4470
See also Mosaics
Picture, sculpture, 12-4469
Byzantine empire, 13-4797-98
Byzantium, now Constantinople, and Constantine the Great, 5-1866
 Constantine changed to Constantinople, 2-576



- Cabal**. The union of several persons in an intrigue to further their own private ideas in church or state. The word comes from the initials of five unpopular political ministers of Charles II of England, namely, Clifford, Ashley, Buckingham, Arlington and Lauderdale. The modern use of the word is one of reproach.
Cabanel, Alexandre, French painter
Pictures
 Little King Louis and his mother (gravure), 16-5815
 Louis IX dispenses justice (gravure), 16-5814

- Cabbage Family**, plants, members of, 13-4870
Cabbages, account of, 7-2616, 2618
Pictures, 7-2619
 wild cabbage, 13-4870

- Cabinet**. A political term used to denote the body of ministers who direct the government of a nation or a country and act as advisers to the president or premier.
Cabinet, Wall, how to make from cigar boxes, 15-5597
Cable, George Washington, American author, 13-4819
Cablegrams
 how received, 17-6053
 how sent, 17-6051, 6053
See also Cables, Submarine
Cables
 telephone, notes on, 17-6182
Pictures, telephone cables, 17-6182, 6189
Cables, Submarine
 * account of, 12-4293-4300
 Atlantic cables, 12-4294
 faults, how detected, 1-188
 first cable from England to France, 12-4294
 from Australasia, 7-2578
 Kelvin's mirror galvanometer, 19-7208
 Lord Kelvin's discoveries, 17-6241
 map of Atlantic cables, 12-4297
 miles of, in use, 17-6054
 Squier's improvement, 17-6241
Question about
 How do men find where a fault is in the Atlantic Cable? 1-188
 * *Pictures*, 12-4295-4300

- Cabot, John**, explorer, 1-242; 8-2978, 2980
Pictures
 leaving Bristol, 1-254
 ship near American coast, 1-249
Cabot, Sebastian, explorer, false claims of, 8-2980

- Cabral (or Cabrera), Pedro**. Portuguese navigator, born about 1460; died about 1526.
 discovery of Brazil, 19-7040
 took possession of Brazil for Portugal, 2-677

- Cacao**, the chocolate tree, 7-2536
See also Cocoa
Pictures
 opening fruits, 7-2531
 plant, flower and fruit (in color), 8-3000
 tree with ripe pods, 7-2535

- Cachelot**, sperm whale
 attack on ships, 6-2218
 note, with picture, 6-2215
Cacomistle, animal, 3-872
Cactus, family of plants, 9-3267-68
 adaptation to environment, 1-329
 Burbank's thornless, 15-5386
 of the Middle West, 18-6660-61
 stem serves purpose of leaves, 2-615
Pictures, 9-3264-65

- Cadgwith**, Cornwall
Picture (gravure), 7-2302
Cadiz. Ancient Spanish city and port. The largest port on the southwest coast, it has large shipbuilding and export trades and considerable manufactures. The two cathedrals contain fine pictures by Murillo.
 founding of, 14-5042
Cædmon, poet, 1-321

- Caen**. Historic city of Normandy, France, with many associations with William the Conqueror. The Abbaye-aux-hommes was founded by him, and the Abbaye-aux-dames by Queen Matilda; their former graves are in the churches of St. Etienne and La Sainte Trinité.
Cæsalpinus, Andrea, studied circulation of blood, 8-2725

- Cæsar, Julius**, Roman general and statesman
 crossing the Rubicon, 18-6552
 * life, 4-1198-99; 4-1366, 1368
 message, "Veni, vidi, vici," 7-2487
 visit to Britain, 4-1320, 1366; 19-6883
 visit to Gaul, 10-3428
Pictures
 condemning Vercingetorix, 4-1360
 death, with explanatory note, 4-1360

- Cafeteria**, game, 10-3515-16
Caffeine, effect of, 4-1451

- Caffiéri, Jean Jacques**, French sculptor, 13-4703
Cage, directions for toy cage, 6-2266
Cagliari, or Callari, Paolo, *see* Veronese, Paolo
Cagliari. Capital and chief port of Sardinia, with a good harbor and a large trade. It has a cathedral and a university, and is rich in ancient remains, having been a Carthaginian stronghold in the 6th century B.C.

- Cahokia Court House**, first public building in Illinois, 19-7112

- Caimans**, variety of crocodile, 14-5229
Picture, 14-5226

- Caine, Hall**, novelist, 11-3898
Cairngorm. Peak of the Grampians on the border of Banffshire and Inverness-shire, Scotland. It is noted for its topazes and cairngorm stones, a variety of quartz, 4,080 feet.

- Cairo**. Largest African city, capital of Egypt. Standing on the Nile, near the site of ancient Memphis, it is the emporium for the merchandise of northeast Africa, and has considerable manufactures. There are over 250 mosques, among them El Azhar, the greatest Moslem university; while other important buildings are the cathedral and the citadel built by Saladin in 1166. Near by are the tombs of the Caliphs and the Pyramids of Gizeh.
 description of, 18-6807
Pictures, 18-6807

- Cairo, Illinois**, description by Dickens, 8-2736
Caius, John, founder of Caius College, Cambridge, 8-2725

- Cake**, recipes for, 9-3376; 11-4015
Calah, ancient Assyrian city, 2-654-55
Picture, 2-646

- Calais**. Nearest port of France to England, on the Strait of Dover. It is a busy, dirty town, with a large fishing industry and manufactures of tulle and lace.
 lost by England, 5-1819
 won from England under Henry II, 10-3434
 siege of, and Queen Philippa, 5-1682

- Calamata**, Greek city, 14-4918
Calamint, flower
Picture (in color) 14-4984

- Calcimine**. A white or tinted wash for walls, ceilings, etc., made of a mixture of clear glue, Paris white or zinc white, and water.
Calcium, compounds of, 13-4530

GENERAL INDEX

Calcium carbide, production and importance, 16-5946

Calcutta. Largest Indian city, and capital of Bengal, on the Hoogli. It grew up round Fort William, completed in 1702, and became the emporium for the trade of the Ganges and Brahmaputra valley, exports now including jute, tea, hides, grain, oil-seeds and cotton. There are fine buildings and two cathedrals.

Black Hole of, 8-2826

capture by Clive, 8-2826

size, and use as a port, 8-2698

Caldecott, Randolph, artist

Pictures, illustrations for John Gilpin,

5-1639-43

Calder, Alexander Stirling, American sculptor, 14-4940

Picture, Little Dear with the Tiny Black Swan, 14-1935

Calderón de la Barca, Pedro, Spanish dramatist, 19-7129

Picture, portrait, 19-7125

Caledonian Canal. Waterway running through the Great Glen of Scotland, and connecting Loch Linnhe with the Moray Firth and North Sea; 60 miles long, it is formed by Loch Ness, Loch Oich and Loch Lochy, with 22 miles of artificial cuttings. The original survey for the work was made by James Watt in 1773, and the canal was begun by Thomas Telford in 1801, and opened in 1822.

Picture, 13-4785

Calendar

date of Christ's birth, 18-6550

Roman, explanation of, 5-1752

Questions about

How is the date of Easter fixed? 16-5959

Who arranged the days? 11-4131-32

Calends, see **Kalends**

Calgary. Oldest and largest city of Alberta, Canada, on the main line of the Canadian Pacific Railway. A great ranching centre, it manufactures leather and flour.

Calhoun, John C., American statesman, life, 10-3492

Picture, portrait (graveure) 11-3948

Calico. The general name for plain cotton cloth. In the United States the name is given to cheap printed material. The process of impressing the figures on the cloth is called calico-printing.

California. Second largest American State, bordering the Pacific; area, 158,297 square miles; capital, Sacramento. Possessing a beautiful climate and immense mineral and agricultural resources, it has had a phenomenal rise in prosperity since settlers were first attracted there by its gold; in 1850 its population was only 93,000. Gold is still the principal mineral, but copper, iron, chromium, antimony, lead, silver, quicksilver, rock-salt and much petroleum are produced. Agricultural produce includes wheat, barley, lucerne, hops, and vast quantities of honey, nuts and fruit. San Francisco has a magnificent harbor; Los Angeles, the largest city, is the centre of the moving picture business trade, and Oakland and San Diego are business centres. Abbreviation, Cal. Nickname, the "Golden State." State flower, the golden poppy. Motto, "Eureka" (I have found it). California may come from the Spanish meaning "a hot furnace." First settlement, San Diego, 1769.

agriculture

orange crop, 6-2057-58

scale on fruit checked by ladybirds,

18-6730-31

birds, 14-5133-48

Burbank's farm, 15-5382-83

described in Western States, 18-6425-36;

19-6841-50

farming in

fruit, 6-2057-58; 19-6848

insect friends and foes, 18-6730-31

vegetables, 19-6848

gold rush in 1849, 6-1922

made a state, 6-1922; 11-3940

map, relief map, 19-6850

missions and Indians, 6-1922; 18-6826

moving pictures in, 18-6602

story of

* Ramona, by Mrs. H. H. Jackson (summary and quotations), 1-133-40

Pictures

big trees, 7-2282; 9-3267

California—Pictures (continued)

cactuses, 9-3265

City Hall, San Francisco, 19-6847

Coliseum at Los Angeles, 7-2312

desert around Salton Sea, 7-2417

fig plantations, 6-2158

flag (in color), 19-7190

gathering oranges, 9-3217

Golden Gate, on Pacific, 19-6849

Golden Gate Park, San Francisco, 9-3219

gold mine in Tuolumne County, 19-6843

harvesting walnuts, 6-2279

irrigation in, 7-2550

Lassen Peak, 7-2289

Mount Wilson observatory, 18-6436

oil wells, 14-4545, 4547, 4549

orange grove and mountain peak, 6-2056

Pershing Square, Los Angeles, 19-6845

pumping station, 15-5443

salt deposits, 3-931

Santa Clara valley, 18-6433

Stanford University, 12-4318

Sutters Fort, 6-1923

two Spanish missions, 18-6829

University, Greek theatre, 12-4317

Yosemite Valley, 7-2284

California, University of, note on, 12-4317

Picture, Greek theatre, 12-4317

Caligula, Roman emperor, 5-1861

Picture, statue of, 5-1861

Caliphate. Sovereignty of the Caliph, the recognized head of the Mohammedan world. Caliph means "successor" that is, successor of Mohammed.

of Hussein, 18-6675

Callao. Chief seaport of Peru, seven miles by railway southwest of Lima. It exports wool, cotton, hides, copper, nitre, silver and guano.

Callicrates, Greek architect, 15-5344

Calling crab, description, 16-5953-54

Calliope, muse of epic poetry and eloquence, 9-3228

Callisto, story of, in mythology, 9-3233

Calopogon, see **Grass pink**

Calorie

Question about

What do we mean when we speak of a calorie? 18-6694

Calorimeter, to measure heat, 16-5662

Picture and note, 16-5661

Calumet, Indian pipe of peace, 18-6553

Calumet-Sag Canal, near Chicago, 19-7110

Calvert, Cecil (c. 1605-75). 2d Lord Baltimore. The first proprietor of Maryland, though he never visited the colony. Leonard Calvert was his younger brother.

powers and duties in Maryland, 2-550

Picture, portrait, 12-4153

Calvert, George, 1st Lord Baltimore and Maryland, 2-550

Picture, portrait, 2-549

Calvert, Leonard (c. 1606-47). First colonial governor of Maryland. In 1634 made the first permanent settlement in Maryland, at St. Mary's.

Calvin, Jean, French author

idea about God, 18-6564

Calypso, orchid, description, 19-6928

Calypso borealis, orchid, description, 17-6281-82

Calyx, part of flower, 2-506

Calzabigi, wrote words for Gluck's operas, 19-6916

Cam, Diogo, Portuguese explorer, 18-6814

Cambium, growing layer in tree, 11-4096

Cambodia. French Indo-Chinese protectorate, covering 67,550 square miles in the Mekong basin. Rice, pepper, tobacco, indigo, sugar, cinamon and coffee are produced, and the capital is Phnom-Penh.

Cambrian period, see **Geology—Cambrian period**
Cambridge. Capital and market town of Cambridgeshire, England. Its famous university, the first college of which was founded in 1284, has 17 colleges and 2 hostels, while the town has several fine churches.

Picture, St. John's College, 18-6489

Cambridge. City of Massachusetts, famous as the seat of Harvard University. It has meat-packing, printing and manufacturing industries. Radcliffe College for women, and Massachusetts Institute of Technology are also here.

Pictures, Craigie House, Longfellow's home, 13-4725

Harvard, old and new, 12-4306

GENERAL INDEX

Cambyzes III. Persian king, son of Cyrus the Great and conqueror of Egypt; king, 528-521 B.C. reign of, 3-912

Camden. City of New Jersey, on the Delaware River. Standing opposite Philadelphia, it has iron foundries and shipbuilding yards, and manufactures glass, chemicals, paper and leather.

Camden, Battle of, 4-1172

Camels

* account of, 5-1595-1600

Arabian, 5-1595-96

attempted use in United States, 5-1600

Bactrian, 5-1595-96

drawing of, how to make, 6-2165

fierce disposition of, 5-1598-99

importance, 5-1595-96, 1598-99

in Arabian literature, 5-1596

origin in America, 5-1599-1600

relation to reptiles, 5-1596, 1598

Pictures, 5-1595-1604

camel trading in Africa, 18-6802

caravan crossing Palestine, 7-2417

different varieties of (graveure), 5-1604

drawing wool wagon, 15-5582

use as domestic animal (graveure),

5-1601-03

Carseo. An engraving on a stone or hard shell done in relief. There are usually two layers of different colors, the relief sculptured on one and the other serving as a background. Opposite of intaglio.

Camera, see Photography

Cameron, George Frederick, Canadian poet,

14-5108

Cameroun, German, part given to England,

9-3056

Camillus, Marcus Furius, Roman general,

4-1362

Camões, Luis Vaz de, Portuguese poet, 19-7130

Picture, portrait, 19-7125

Camomile, see Chamomile

Camorra. Secret society of Naples formed in the early 19th century and used for practicing extortion or violence.

Camouflage, developed by Abbott Thayer,

10-3454

Camp Fire Girls, account of, 14-5061-68

Pictures, 14-5061-68

Camp robber, name for Oregon Jay, 14-5136

Campanile. A bell tower not attached to another building; introduced into architecture by early Christians.

at Florence (Giotto's tower), 5-1737;

17-6162-63

at Venice (St. Mark's), 4-1458

Pictures

at Florence, 5-1746-47

at Venice, 4-1465-66

Campanulas, flowers, 17-6130

Picture, flower (graveure), 19-7175

Campbell, Sir Colin, and Indian mutiny, 8-2828

Campbell, Douglas, American aviator, 17-6294

Campbell, Thomas, Scotch poet, 12-4228

as a song-writer, 10-3606

See also Poetry Index, for poems and notes

Picture, portrait, 10-3605

Campbell, William Wilfred, Canadian poet,

14-5108

Camphausen, Wilhelm, artist

Picture, Frederick William, 11-3969

Camphor, account of, 8-2913

Question about

Does camphor keep moths away? 16-5958

Campine, part of Belgium, 15-5498

electrical facilities, 15-5500

poultry from the district, 12-4494

Camping

Camp Fire Girls, 14-5061-68

Campions, plants, 14-5158

moss campion, description, 15-5602-03

of Rocky Mts., 18-6667

sea campion, 14-5158

Pictures

moss campion, 15-5603

sea campion, 14-5163

Pictures (in color)

bladder campion, 15-5397

evening campion, 13-4880

red alpine campion, 15-5610

red campion, 13-4877

sea campion, 14-4982

Capua Martius. Vast plain to the west of

Rome where public assemblies were held.

Canaanites. Descendants of Canaan, son of Ham, inhabiting the land lying between the Jordan and the Mediterranean (included in modern Palestine). The Canaanites were conquered by the Israelites after a long struggle.

Canada

birds

* land birds, 13-4759-66, 4829-44

* western birds, 14-5133-48

Cabinet, see Canada—government

canals, 13-4787

climate, 1-108, 112

in winter, 10-3693

coal production, 3-790

* description, 1-105-16

* Great Lakes and the St. Lawrence River,

6-1955-63

* northern regions, 7-2557-62

See also names of Canadian provinces

education, 4-1486

French Canadian, 8-2950-51

influence of United Empire Loyalists,

14-5104

public schools established, 4-1486

flowers

* Flowers of the East, 17-6272-82; 18-6567-72

* Flowers of the Pacific Coast, 19-6927-40

* French population, 8-2949-56

* fur-farming, 13-4693-96

fur trade, see Fur trade—Canadian

* government, 5-1833-40

as Dominion, 1867, 4-1488-90

as United Province, 1841-67, 4-1484-88

Parliamentary franchise for women, 4-1491

Pictures of Parliament, 5-1838-39

governor-general, influence of, 4-1492

list of Dominion governors, 4-1492

habitants, life of, 8-2952-56

historians of, 14-5105

histories of, 15-5367-68, 5373-74

history (arranged chronologically)

* French Canada to 1763, 2-677-83

claimed for France by Cartier, 2-678

French and the fur trade, 12-4337-38

French and Indian War, 6-2100

* period 1763-1840, 3-941-46

changed to a British colony, 3-941

during American Revolution, 3-942, 944

War of 1812, see United States—history—

War of 1812

* period 1838-1923, 4-1483-93

rebellion of 1837-38, 3-945-46; 4-1483

Dominion created by confederation of

provinces, 1867, 4-1488

World War, 4-1491

number of men sent, 7-2300

industries

boot and shoe manufacture, 18-6443

* department store, 10-3673-82

* flour-making, 8-2795-2802

* fur-farming, 12-4337-42; 13-4693-96

locomotive-building, 2-416

match manufacture, 19-6969-71

* pulp and paper manufacture, 7-2445-53

Jewish population, 19-7167

law, first code, by Champlain, 2-680

literature, see Canadian literature

map, 1-107

mines and mining

in interior continental plain, 1-114

in Laurentian plateau, 1-112

in western Cordillera, 1-114

name, origin of, 2-678

national anthem, 18-6651

national bird of, 13-4835

national emblem, the maple leaf, 17-6161

novels about, 15-5369-72

painting, see Painting, Canadian

Parliament, see Canada—government

petroleum production, 13-4538

* physical geography, 1-105-16

pioneer life, 16-5901-05

* police, Dominion forces, 16-5831-38

political parties, 5-1840

population, 1923, 4-1492

provinces and territories, list, 1-105

provincial governments, 5-1836, 1840

railroads

Canadian National Railways, 4-1491

Canadian Pacific Railway, 4-1490

relations with England, 5-1834

religion, among French Canadians, 8-2950-51,

2954

GENERAL INDEX

Canada (continued)

- resources, 4-1492
- northern regions, 7-2558, 2560
- * Royal Canadian Police, 16-5831-38
- sculpture, *see* Sculpture, Canadian
- songs, patriotic
- Maple Leaf Forever, by Alexander Muir, 13-6874
- O Canada, by F. G. Scott, national song, 17-6256
- tariff, protection increased, 4-1490
- tariff history to 1866, 4-1486, 1488
- * winter sports, 10-3693-98
- wool industry, 15-5577
- Poems about*
- Canada, by J. F. McDonnell, 9-3109
- Canadian Boat Song, 9-3271
- Hymn of Empire, by F. G. Scott, 10-3483
- Our Norland, by Charles Sangster, 15-5417
- Red River Voyageur, J. G. Whittier, 15-5420
- The Colors of the Flag, by F. G. Scott, 10-3482
- Pictures*, 4-1482-93; 8-2948-56
- irrigation in Canada, 7-2549
- northern regions, 7-2556-61
- Canada, Lower, *see* Lower Canada
- Canada, Upper, *see* Upper Canada
- Canada mayflower, 17-6280
- Canadian Authors' Association, 14-5103
- Canadian literature
- folk-lore, 15-5373-74
- folk song, 14-5104
- historical writers
- early journalists and historians, 14-5104-05
- of French Canada, 15-5367
- on politics and economics, 15-5367-68
- humorists
- Haliburton, creator of Sam Slick, 14-5105
- of to-day, 15-5371-72
- nature writers, 15-5372-73
- novelists and writers on adventure
- early fiction, 14-5106
- modern story-writers, 15-5368-71
- poets, 14-5106-10
- Canadian National Railways, 4-1491
- and radio, 17-6369
- locomotives, notes and pictures, 2-416
- Canadian National Telegraphs. *Picture*, 17-6062
- Canadian Pacific Railway
- finished, 4-1490
- Pictures*, 2-417
- telegraph office, 17-6062
- Canadian River. American river, rising in north-eastern New Mexico. Flows into Arkansas River. 900 miles.
- Canadian Rockies, *see* Rocky Mountains—Canadian
- Canadian Shield, name for Laurentian Plateau, 1-110
- Canadian Silver Fox Breeders' Association, 13-4694
- Canal Zone, *see* Panama Canal Zone
- Canals
- * Canals and how they work, 13-4785-93
- American, in United States, 13-4787
- Canadian, 13-4787
- Chenab, India, 7-2544
- English, 13-4786
- Brindley's work in England, 19-7205
- French, 11-3816, 3818
- German, 13-4786
- on Mars, 9-3292
- Panama Canal, account of, 1-360-67
- statistics of, 13-4786
- See also* Erie canal; Locks of canals
- * *Pictures*, 13-4785-93
- Mississippi River and Lake Pontchartrain, 16-5657
- Panama, 1-360-70
- supposed canals on Mars, 9-3292
- Xochimilco canal, Mexico, 19-7141
- Canary, bird, 8-2974
- Canary grass
- red, note and picture, 10-3664
- Picture* (in color) 10-3523
- Canary Islands. Volcanic island group off the northwest coast of Africa, covering altogether about 2,800 square miles. The climate is mild, and the soil amazingly fertile; immense quantities of fruit, besides wine, sugar and tobacco being grown; while the export of bananas is important. The chief islands are Grand Canary and Teneriffe, with its famous peak 12,000 feet

Canary Islands (continued)

- high; Santiago de Tenerife is the capital. The Canaries have belonged to Spain since 1495.
- Canberra. Future capital of Australia, begun in 1913. It is situated in the Canberra Federal Capital Territory, 912 square miles in extent, in New South Wales, and has railway communication with Sydney.
- Cancer. An abnormal increase in size of an area of tissue or of an organ; a malignant tumor.
- Cancer-root, 18-6572
- Candle race, in water, 8-3024
- Candle tree, 9-3266
- Picture*, 9-3263
- Candlefish, name for eulachon, 16-5776
- Candles
- bayberry, 14-5165
- experiment, firing from gun, 13-4665, 4667
- Question about*
- Why can we put out a candle by blowing? 5-1608
- Candy
- recipes, 1-340; 2-752; 11-3856
- coconut, 10-3771
- Candytuft, flower
- Pictures* (graveure) 19-7180; (in color) 15-5611
- Canfield, Dorothy, *see* Fisher, Mrs. D. C.
- Canina, Luigi, Italian archaeologist, found length of Roman foot, 2-463
- Cannæ, battle, Hannibal defeated Romans, 4-1196
- Cannes. Riviera watering-place, one of the most popular holiday resorts in France.
- Canning, Sir Samuel, and Atlantic cable, 12-4294
- Cannon, toy, how to make, 11-4085
- Cannon-ball tree, 9-3266
- Picture*, 9-3260
- Cannon-balls
- Question about*
- Can an irresistible cannon-ball knock down an immovable post? 15-5516
- Cano, Sebastian del, and Magellan, 1-90
- Picture*, portrait, 1-90
- Canoeing
- canoe race for hand paddlers, 8-3024
- Poem about*
- Song my Paddle Sings, by E. P. Johnson, 15-5419
- Canoes
- Picture*, with Indians, 17-6201
- Canoes, Eskimo, how made, 7-2566
- Canon, form of music, 19-6901-03
- Canopus, star
- great distance from earth, 9-3039
- Canossa. The castle in Italy where Hildebrand, better known as Pope Gregory VII, received the submission of King Henry IV of Germany in 1077.
- Canova, Antonio, Italian sculptor, 13-4856, 4858
- story of boyhood, making a lion, 5-1689-90
- Cans, *see* Tin cans
- Cant, derivation of word, 10-3557-58
- Canterbury. Ecclesiastical capital of England, on the Kentish Stour. An ancient British town, it became Durovernum of the Romans, and later capital of Saxon Kent. The magnificent cathedral was founded by St. Augustine in 597, and was finally completed about 1495. Here Thomas à Becket was murdered in 1170, his shrine being for centuries a resort of pilgrims. Other buildings are: St. Martin's Church, probably the oldest in England; the ruined Norman keep of the castle; the West Gate; and remains of the ancient walls.
- Canterbury bells, flower
- Picture*, (graveure), 19-7175
- Canterbury cathedral
- Pictures*, 16-5965; (graveure), 16-5973
- Canterbury Tales, by Chaucer, account of, 1-302-03
- * summaries of parts, 13-4767-73
- Cantharides, the Spanish fly, Drake's joke, 14-4964
- Cantigny. The first engagement (of any size) of the American troops in the World War was at Cantigny, May 28, 1918.
- Cantilever bridges, 1-28-29
- Canton, John, invented electrical instruments, 4-1250
- Picture*, portrait, 4-1243
- Canton. Metropolis of southern China, on Canton River. Forty miles from the sea, it does much of its huge trade by lighters, and many

GENERAL INDEX

Canton (continued)

thousands live on boats in the river. Silk is largely exported.

description of, 2-436

Pictures, (gravure), 2-426

Canuck, Janey, see Murphy, Emily

Canute, king of England, Denmark and Norway, 4-1436; 15-5292

Canvasback, duck, 11-3889

Picture, (in color), 12-4369

Caoutchouc, obtained from banyan tree, 9-3261

Picture of plant producing (in color), 8-2997

See also Rubber

Cape Breton Island. Island of Nova Scotia, Canada; area, 3,120 square miles; capital, Sydney. Coal is mined, and there are shipbuilding, lumber and fishing industries.

Bras d'or Lake, formation of, 1-106

Cabot's voyage to, 8-2980

Cape Cod, picture and note, 11-4060

Cape Colony, South Africa

history, 9-3048-50

Cape of Good Hope. Southern and largest South African province; area, 277,000 square miles; capital, Cape Town. Containing the dry and healthy Karroo table-lands, it is mainly agricultural and pastoral; wheat, oats, barley, rye, corn and vegetables are grown, and sheep, ostriches and Angora goats reared. Near Kimberley there are diamond-fields; copper is mined in Namaqualand, and there are coal-mines near Stormberg. Port Elizabeth, East London and Mossel Bay are ports.

history, 9-3048-50

Cape Town. Capital and chief port of Cape of Good Hope Province, South Africa. Beautifully situated on Table Bay, it is finely built, and has a splendid climate; there are extensive docks and an Anglican cathedral. More than half the inhabitants are white.

Pictures, 9-3053

Cape Verde Islands. Group of Portuguese West African islands, lying off Cape Verde, 1,480 square miles in extent, they produce coffee, sugar, corn, tobacco and indigo.

See also 14-5188

Capelin, fish, 16-5776

Caper, plant, account of, 8-2996

wild caper, fruit of, 11-4020

Pictures, (in color), 8-2998

fruit of caper spurge, 11-4023

Caper spurge, see Caper—wild

Capercaillie, European grouse, 12-4364

Picture, (in color), 9-3281

Capes, see names under word following Cape: as, Blomidon, Cape

Capet, Hugh, see Hugh Capet

Capibara, animal. Picture, 3-1131

Capillaries, minute blood vessels

and bleeding, 13-4596

description, and work of, 4-1213

in bowel, functions of, 6-2086

meaning of word, 4-1209

Capillary tube. A tube with a very small bore or inside diameter, usually as fine as a hair or even finer. If this tube (both ends open) has one end in a vessel of water, the water will rise inside the tube to quite a height. The finer the bore of the tube the higher the water will rise. Different liquids rise to different heights. The tendency of a liquid to rise in such a tube is called "capillary attraction." The wick of a candle or lamp is made up of thousands of tiny tubular threads through which the oil rises.

Capital

difference between interest and profit, 17-6093

origin, and economic value, 15-5359-60

relation to labor, 17-6094

relation to labor and land, 17-6091

saving of capital necessary to develop

resources, 17-6362

Capitol, Washington, D. C., 5-1533-34

Pictures, 5-1535, 1543; 18-6679

Capitol before Civil War, 10-3487

Cappel, Battle of, 16-6004

Capri. Beautiful island at the entrance to the Bay of Naples, famous for its Blue Grotto. There are remains of Roman cisterns and baths.

Caprifig, wild fig, necessary for growth of

cultivated figs, 6-2162

Capsicum, plant, yields varieties of pepper,

8-2992

Picture, 8-2990

Capstan, definition, 14-5004

Capulets

Question about

Who were the Capulets and the Montagues?

16-5741

Carabao, see Buffaloes

Caracal, animal. Picture (gravure), 2-500

Caracaras, birds, 10-3759

Picture, (gravure), 10-3761

Caracas. Capital of Venezuela, with a university and a cathedral. La Guayra is its port.

Picture, 19-6979

Carack, a ship, 11-3916

Caractacus, British chief, 4-1320

Picture, 4-1321

Caramels, recipe, 11-3856

Carat, unit of weight, 19-7227

Caravaggio, Michelangelo Amerigi da, Italian painter, 3-1108

influence on Le Nain brothers, 5-1874

influence on Ribera, 4-1496

naturalism of, 9-3069

Picture, The Lute Player, 9-3070

Caravans in desert, description, 18-6743

Pictures, 18-6739; (gravure), 5-1602

Caravels, ships, 11-3916

Caraway seeds, 8-2996

Carbides. In chemistry these are compounds of carbon either with the metals or with certain non-metallic elements such as silicon. Iron carbide and calcium carbide are the most important carbides. Carbides are used in iron smelting and in the manufacture of acetylene gas.

Carbohydrates, digestion of, 6-2085

use as food, 6-2187

Carbolic acid, or **phenic acid** (C₆H₅OH). An important organic substance used as an antiseptic or disinfectant. It is found almost exclusively in coal-tar, produced by the destructive distillation of coal or wood. A further distillation of the coal-tar produces the carbolic acid.

Carbon, chemical element

and protoplasm, 2-664

compounds of, 12-4406

in electric lamps, 16-5936

Carbon dioxide

cause of death, 4-1331

formed by burning carbon, 4-1232

given off in breathing, 1-312

heavier than air, 18-6693

how body gets rid of, 4-1330

in blood, 3-937

plants use, through chlorophyll, 2-616

Carbon monoxid, or **carbonic oxid** (CO). A gas made up of carbon and oxygen, and deadly poisonous. It is formed by the breaking-up of carbonic acid, and its general sources are the coal or charcoal fire, illuminating gas and the exhaust from a gasoline engine. It is colorless and odorless, and burns with a pale lavender flame. A furnace or stove gives off carbon monoxid if the drafts are not open sufficiently to permit enough oxygen to enter and combine with the CO to form CO₂. It is highly dangerous to remain in a room where a gasoline engine is going unless doors and windows let in a good supply of fresh air. Especially should this be remembered in garages and in the engine-rooms of motor boats, for the quantity of CO given off by a gasoline engine mounts rapidly and is deadly in the extreme. To detect carbon monoxid in the air a cloth moistened with palladium chlorid may be used; if CO is present in any quantity, a brown color will appear on the cloth. Palladium chlorid may be secured at the drug store.

Carbonic-acid gas (CO₂). Also called carbon dioxide or choke damp. A gas made up of carbon and oxygen. It is given into the air when people and animals breathe, and in daylight it is absorbed by plants, which make it into food for themselves. It dissolves in water. In large quantities it is deadly to animal life, for it is poison to the lungs. It can be used in aerated or mineral waters as a drink and is harmless to the stomach. It is a colorless, odorless gas, 22 times as heavy as hydrogen. It will not burn, nor will it support burning.

Carboniferous period, see Geology—Carboniferous period

Carborundum. An artificial abrasive which takes the place of emery. It is produced in the

GENERAL INDEX

Carborundum (continued)

electric furnace from smelting a mixture of coke, sand, sawdust and salt.

Carbuncle, garnet cut with curved surface, 19-7226

Carburetor, in automobile, 19-7029, 7032
diagram of, 19-7032

Carcassonne, France, 10-3612; 11-3820

Picture, old cathedral (graveure) 17-6171

Card tricks, see *Tricks*—card

Cardiff, Commercial capital and port of South Wales, at the junction of the Taff with the Bristol Channel. The export centre for the South Wales coal-field, it has risen rapidly in importance during the last century, the population in 1801 having been less than 2,000. It has large steel and copper works and considerable manufactures, and is noted for its fine docks.

height of tides at, 7-2542
Cardinal, A high dignitary of the Catholic Church and a member of the Sacred College (or counselors of the pope). When a pope dies the new pope is elected by the cardinals from the members of the Sacred College. A cardinal is appointed by the pope, and is a prince of the Church and ranks next to the pope.

Cardinal-birds, 8-2973

* account of, 14-5024

Pictures, 8-2969, 2975; (in color) 10-3623

Cardinal-flower, description, 18-6572

Jarew, Lady Elizabeth, see *Poetry Index* for poem and note

Carew, Thomas, see *Poetry Index* for poem and note

Carex, Marsh, plant, note and picture, 16-5878

Carey, Henry, author of *Sally in our Alley*,

10-3609

See also *Poetry Index* for poem and note

Caribbean Sea, Part of the Atlantic lying between South and Central America and the West Indies.

Caribou, animal, 4-1447-48

hunted by Indians, 7-2558, 2562

skin used by Eskimos, 7-2566

Picture, 4-1442

Caribs, A family of American Indian race who inhabit central Brazil and the Guianas and the Lesser Antilles. The Caribbean Sea is named for them.

resistance to Europeans, 19-7098-99

Carleton, Will (1845-1912). American poet.

Carlisle Indian School, opening of, 19-7240

Carlotta, Empress of Mexico, 19-7138

Carlsen, Captain, polar explorer, 8-2983

Carlyle, Thomas

* life and writings, 9-3311-14

influence of his *Life of Cromwell*, 11-3848

Pictures

portrait, with mother, 15-5619

among his books, 9-3311

news of burned manuscript, 9-3313

Carman, William Bliss, Canadian poet, 14-5108

See also *Poetry Index* for poems and notes

Picture, portrait, 14-5102

Carnation, flower, description, 19-7170

Pictures, flowers (graveure) 19-7178

Carnegie, Andrew (1835-1919). A Scottish-American capitalist who made an immense fortune in the United States as a producer of steel. Much of his wealth he gave to found libraries bearing his name. In 1911 he established the Carnegie Corporation of New York and had endowed it before his death, with \$125,000,000 to be used for promoting civilization. Carnegie made public gifts amounting to \$350,000,000 before he died.

Carnelian, semi-precious stone

Picture (in color), facing 19-7225

Carnot, Lazare, French war minister called the Organizer of Victory; born, Nolay, Burgundy, 1753; died, Magdeburg, 1823.

as war minister, 6-2200

Picture, portrait, 6-2127

Carolina, royal grant, 1663, 2-553

See also *North Carolina*; *South Carolina*

Caroline Islands, Group of about 500 Pacific islands, discovered by the Portuguese in 1527. Purchased by Germany from Spain in 1899, in 1914 the whole archipelago, including Yap and Ponapé, passed to Japan. By the Treaty of Versailles Japan took the mandate for the islands.

massive ruins on, 9-3302

Carols, Christmas, see *Christmas*—*Poetry*

Carp, fish, account of, 15-5632, 5634

lake carp not a carp, 15-5634

Carpaccio, Vittore, Italian painter, 3-1104;

4-1461-62

Picture, St. Stephen in dispute with doctors,

4-1454

Carpathians, Mountain range in Central Europe, encircling the plain of Hungary. It reaches its highest points in the High Tatra of Czecho-Slovakia, 8,750 feet, and in the Transylvanian Alps of Rumania, 8,250 feet.

description of, 13-4690

Carpeaux, Jean Baptiste, French sculptor,

13-4706

Picture, study for *La Danse*, 13-4705

Carpel, part of flower, 2-506; 3-1013

Pictures, 2-509

Carpenters' Hall, A historic building on Chestnut Street, Philadelphia, associated always with the First Continental Congress.

Picture, 18-6833

Carpentry

crating, directions for, 7-2514-15

directions for making

bench-hook, 17-6262

bird house, 1-341

blackboard, 14-5006

boat, flat-bottom, 16-5983-84

bookcase, 8-2877

boxes

blackening box, 7-2378-79

general-utility box, 7-2377-79

hanging flower-box, 6-2262-63

knife-and-fork box, 13-4734

mitre-box, 17-6263

nail-box, 17-6262-63

plant box, 3-893

scrap-box, 6-2262

tool-box, 1-234

window-box, 2-513-14

cutting-board, 6-2259-60

dog's kennel, 16-5766

doll's house, 3-1150

flower stand, 8-2875-76

footstool, 6-2263-64; 12-4373-74

furniture, rustic, 13-4736

furniture, toy, 5-1765-66

garden seat, 10-3506-07

loom, 14-4997-98

picture-frames, 4-1393-94

plant stand, 7-2645-47

shelf, 14-4999

shirt-waist closet, 8-2876-77

ski, 16-5979

sled, 6-2041-42

stage, model, 14-5203-04

stage for amateur theatricals, 16-5763

stands, 8-2878-79

stool, 9-3117

submarine, toy, 10-3503-04

summerhouse, 13-4849-50

table from cheese-box, 14-5006

tents, home-made, 2-624

tool rack, 17-6262

tray, 4-1283-84

wall cabinet, 15-5597

wall-rack, 7-2379

wheelbarrow, 9-3253-54

workbench, 11-4013-14

writing-board, 2-749

nailing boxes, 8-2741

tools for, 1-232-34

Question about

Why does a carpenter seldom use nails in

oak? 14-5084

Carpet-knight, Term of contempt for a man who leads a life of idle luxury instead of fighting his battles in the world.

"Carpetbaggers" in South, after Civil War, 7-2444

Carracci, Agostino, Italian painter, 3-1108

Carranza, Vennustiano, president of Mexico,

19-7140

Carrara, City in Italy long noted for its marble. Ancient Roman tools are often found in the quarries.

Pictures, 13-4575

Carrara marble, notes, with pictures, 13-4575

Carrel, Alexis, French-American surgeon, medical discoveries, 15-5492-93

Picture, portrait, 15-5493

Carrière, Eugène Anatole, French painter, 8-2714

Picture, portrait of Anatole France, 8-2709

GENERAL INDEX

- Carroll, Lewis**, pen name of C. L. Dodgson
Alice in Wonderland, quotations and summary, with illustrations, 3-1089-98;
4-1179-85, 1333-42
letters to little girls, 16-5689, 6035
writing of Alice in Wonderland, 9-3198-99
See also Poetry Index for poems and notes
Pictures, portrait, 9-3193
First telling of Alice in Wonderland, 9-3192
Carrots, vegetable, 7-2624
wild, description, 15-5392, 5396
Pictures, 7-2620; wild carrot, 15-5396
Carruth, William Herbert, see Poetry Index for poem and note
"Carrying coals to Newcastle," meaning of expression, 7-2612
Carson, Christopher (1809-68). Generally known as Kit Carson. A famous American hunter, trapper, Indian fighter and Western scout.
Carson City. Capital of the State of Nevada. It is situated about 12 miles from Lake Tahoe, near the base of the Sierra Nevada, and is in a fertile agricultural district.
Cartagena. Seaport of Colombia, exporting sugar, coffee, tobacco, cattle, hides, dyewoods and rubber. Founded in 1533, it has a cathedral and a university and the best harbor on the Caribbean coast.
Cartagena, Spain, formerly New Carthage, 14-5042
Picture, 14-5052
Carter, fish
Picture (in color), 16-5782
Carteret, Sir George, and colony of New Jersey, 2-552
Cartier, Jacques, French explorer
* expeditions to Canada, 2-678-79
Carthage, ancient city and state in Africa
destruction of city by Rome, 4-1196
history, 18-6808
in the *Aeneid*, 6-1986-88
legendary founding by Queen Dido, 3-1114
Punic Wars, with Rome, 4-1194-96, 1362, 1364
Cartier, Jacques, French explorer
explorations in Canada, 1-246
Poem about. Jacques Cartier, by T. D. McGee, 15-5418
Picture, portrait, 1-245
Cartilage, early form of bone, 5-1561
Cartoons, in moving pictures, how made, 2-456
Cartouche, royal sign, 3-814
Cartwright, Edmund, inventor of power loom, 19-7204
Picture, portrait, 19-7201
Caruso, Enrico. An Italian operatic tenor possessing a voice of extraordinary power. Born, Naples, 1873; died, August 2, 1921. Sang in grand opera in practically every important city in the world.
Carving, see Woodcarving
Cary, Alice, hymn-writer, 12-4438
See also Poetry Index for poem and note
Cary, Lucius, 2d viscount Falkland, in English Civil War, 11-3852
Cary, Phoebe, hymn-writer, 12-4438
See also Poetry Index for poem and note
Casabianca, Giacomo Jocene, story of bravery, 19-6881
Casablanca. Chief Moroccan Atlantic port, with a fine modern harbor. It is connected by railway with Rabat and Fez.
Casgrain, L'Abbé, French Canadian author, 15-5367
Cash register. A kind of adding machine and cash box which makes a record of the money received for every purchase and adds the sum to that already in the drawer of the register; in addition it shows the customer what he has been charged. Figures are shown on registering keys, and pressure on one or more of these keys records the sum added to the drawer. James Ritty, of Dayton, Ohio, invented the first cash register in 1879.
Cashaw, West Indian name for mesquite, 13-4641
Cashew nuts, 6-2278
Casimir III, king of Poland, 13-4680
Caslon, William, English type-founder, 9-3388
Caspian Sea, largest lake in the world, 7-2538
Cassandra
Question about
Who was Cassandra? 8-3014
Cassatt, Mary, American painter, died in 1926, 10-3460
Cassatt, Mary (continued)
Picture, Mother Feeding her Child (gravure), 10-3464
Cassava, furnishes tapioca, 5-1624
Picture (in color), 8-2997
Cassia, plant, 8-2911-12
Cassia bark, 8-2995-96
Cassine, shrub, leaves used for beverage, 13-4783
Cassio, fish
Picture (in color), 16-5786
Cassiopeia, constellation, legend about, 6-1970-71
Picture, position in sky, 9-3037
Cassiques, of oriole family, 8-2970
Cassites, ancient people, ruled Babylonia, 2-652
Cassowaries, birds, 13-4657
Picture, 13-4654
Castes, in India, 8-2700, 2702
origin of, 8-2821
Castile. Old and New Castile comprise roughly the whole of the centre of Spain, and contain Madrid, Toledo, Burgos, Segovia and Valladolid. They formerly made up the most important Spanish kingdom, their union with Aragon in 1479, under Ferdinand and Isabella, being the beginning of modern Spain.
geographical position of, 14-5040
Castilloa elastica, tree, produces rubber, 8-2790
CASTING vote. Deciding vote given by the president or chairman in certain cases where the voting on both sides is equal.
Castle Dangerous, by Scott, note on, 11-4070
Castle Dangerous, fort
defense by Madeline de Verchères, 11-4089-91
Castles
châteaux of France, 18-6492, 6494-95
English, development of, 18-6489
Heidelberg castle, 18-6498
on the Rhine, legends of, 18-6503-07
sand, how to build, 12-4495-97; 17-6257
Pictures
in Denmark, 15-5295
in England, 7-2297; 18-6488; (gravure), 7-2304
in France (châteaux), 18-6497, 6499, 6501
in Germany, 12-4163; 18-6505-06; (gravure), 12-4178-79
in Ireland, 8-2929, 2931, 2937
in Portugal, 14-5189
in Spain (Alcazar), 14-5045, 5047; 15-5465; (gravure), 15-5473, 5475, 5477
in Sweden, 15-5306
Castor
Question about
Who were Castor and Pollux? 17-6288
Castor, binary star
Picture, showing relative positions of stars, 11-3923
Castor-oil plant, 8-2912
Pictures, 8-2909; (in color), 8-2999
Cat-tail, see Cattails
Catacombs, underground galleries, 2-576, 578
Picture, 2-577
Catalepsy. A medical term for a seizure in which the victim becomes unconscious, yet his body keeps the attitude assumed when he was smitten.
Catalina Island, California, radio station at, 17-6370
Catalonia. Old province of Spain, in the extreme northeast of the peninsula. The Catalans are hardy and hard-working, with a dialect of their own, and their country is one of the chief Spanish industrial centres, especially around the great port of Barcelona. A strong separatist feeling has existed in Catalonia for centuries.
progressive spirit, 14-5048
Catalpa tree, 13-4642-43
Picture, in winter, 13-4643
Catalufa, fish
Picture (in color), 16-5787
Catalysis, chemical process, 13-4532
Catapult. A forked stick shaped like the capital letter Y. To each of the prongs a piece of elastic band is fastened, and the two elastics are joined by a square piece of leather. If a piece of stone is placed in the leather, which is pulled back and then let go, the stone will be thrown some distance. In ancient times a catapult was an engine of war used to throw darts of great size. French mortars used in the World War worked on the same principle.
Cataract, disease of eye, 10-3686
Question about
What is cataract of the eyes? 12-4505

GENERAL INDEX

- Catbirds**, 9-3139; 13-4838
Pictures, 9-3135; 13-4833
- Catch-ball**, game, directions for, 4-1400
- Catchfly**, flower
Picture, English catchfly (in color), 14-4993
- Catching a Tartar**. Popular phrase for meeting more than one's match, Tartars having been considered formidable savages.
- Caterpillars**
 damage done by, 18-6532
 life history of, 18-6527-30
 of goat moth, 18-6528
 of silk-moth, 18-6529
Pictures (in color), 18-6529-47
- Catesby's leucothoe**, plant, description, 19-7089
Picture, 19-7091
- Catfish Family**, account of, 15-5632
Picture (in color), sea catfish, 16-5786
- Cathcart, Charles Murray**, 2nd earl, in Canada, 4-1486
- Cathedrals**
 American
 St. John the Divine, New York City, 17-6216
 St. Patrick's, New York City, 17-6216
 Belgian
 Antwerp, 17-6161
 Bruges, 17-6161-62
 Tournai, 17-6161
 Dutch
 Utrecht, Haarlem, Dordrecht, 17-6162
 * English, 16-5969-72
 Durham, 16-5964
 Ely, 16-5971
 Exeter, 16-5971
 Lichfield, 16-5969
 Lincoln, 16-5970
 Liverpool, 18-6492
 Peterborough, 16-5970
 Salisbury, 16-5969
 St. Paul's, London, 12-4356-58; 18-6491
 York Minster, 16-5970
 French, 17-6155-60
 Amiens, 17-6159
 Bayonne, 17-6160
 Beauvais, 17-6158
 Bourges, 17-6159
 Chartres, 17-6158
 Le Mans, 17-6159
 Notre Dame, Paris, 10-3437; 17-6158
 Rheims, 17-6159
 Rouen, 17-6159
 Strassburg, 17-6160
 German
 Aix-la-Chapelle, 16-5723
 Cologne, 17-6161
 Irish
 Queenstown, 8-2933
 Italian
 Florence (Duomo, Santa Maria del Fiore), 5-1738-39; 17-6162
 Milan, 17-6162
 Pisa and others of Romanesque period, 16-5725
 Siena, 17-6163-64
 Venice, St. Mark's, 4-1456; 16-5718-19
 Russian
 Vasili, at Moscow, 16-5857
 Spanish, 17-6164
 Burgos, 17-6164
 Granada, 18-6502
 Seville, 17-6164
See also Church architecture
Pictures, 8-3010-11
- American**
 New York, St. John the Divine, (gravure), 18-6686
 New York, St. Patrick's (gravure), 18-6686
 Washington, D.C., St. Peter and St. Paul, 5-1543
- Austrian**
 Vienna, St. Stephen's (gravure), 17-6171
- Belgian**
 Antwerp, 17-6155, 6157; (gravure), 17-6167
- English**
 Bristol, 16-5965
 Canterbury, 16-5965; (gravure), 16-5973
 Exeter, 16-5975
 Gloucester (gravure), 16-5974, 5976
 Hereford (gravure), 16-5974
 Liverpool, 18-6502
 London, St. Paul's, 12-4357
- Cathedrals—Pictures—English (continued)**
 Peterborough (gravure), 16-5975
 Rochester (gravure), 16-5974
 Salisbury (gravure), 1-72; 16-5976
 Wells, 16-5963
 Winchester (gravure), 16-5976
 York Minster (gravure), 16-5973
- French**
 Albi (gravure), 17-6172
 Amiens (gravure), 17-6167, 6172
 Avignon (gravure), 16-5723
 Bordeaux, St. André, 10-3575
 Carcassonne (gravure), 17-6171
 Chartres, 17-6157; (gravure), 17-6169
 Laon (gravure), 17-6167
 Le Mans (gravure), 17-6168
 Noyon (gravure), 17-6171-72
 Paris, Notre Dame, 10-3437; 12-4469; (gravure), 1-72; 17-6168
 Rheims, 8-3011; (gravure), 17-6166
 Rouen (gravure), 17-6165
 Senlis (gravure), 17-6171
 Strassburg, Alsace-Lorraine (gravure), 17-6166
- German**
 Aix-la-Chapelle (gravure), 16-5723
 Berlin (gravure), 12-4173
 Bonn (gravure), 12-4177
 Bremen (gravure), 12-4180
 Cologne, 18-6503; (gravure), 17-6170
 Ratisbon (gravure), 17-6170
 Ulm (gravure), 17-6167
 Worms (gravure), 16-5724
- Italian**
 Florence, Duomo (gravure), 5-1747
 Milan (gravure), 17-6169
 Orvieto (gravure), 17-6172
 Palermo (gravure), 16-5723
 Pisa (gravure), 16-5721
 Siena (gravure), 17-6170
 Venice, St. Mark's (gravure), 4-1466-68; 16-5721-22
- Latvian**
 Riga, 16-5861
- Mexican**
 Mexico City, 19-7135
- Norwegian**
 Trondjem, 15-5299
- Polish**
 Lemberg, 13-4681
 Warsaw, St. John's, 13-4687
- Portuguese**
 Lisbon, 14-5189
- Rumanian**
 Bucharest, 14-4928
- Russian**
 Leningrad (gravure), 16-5722
 Moscow, 16-5857
- South American**
 Buenos Aires, 19-7037
 Lima, Peru, 19-6974
 Montevideo, 19-6981
- Spanish**
 Burgos (gravure), 17-6166, 6171
 Saragossa, 14-5047
 Seville (gravure), 17-6172
 Valencia, 14-5049
- Swedish**
 Lund, 15-5305
- Catherine, St.**, story of, 6-1994
Picture, from painting, 6-1995
- Catherine II**, empress of Russia, 16-5693-94
 influence on Russian literature, 19-6906
- Catherine de Medici**, influence, 10-3434, 3436
- Catherine of Aragon**, wife of Henry VIII, 5-1814, 1816
- Catherine-wheel**, origin of name, 6-1994
- Catholic Church**
 * Early leaders of the church, 8-2843-50
 * Men of the Crusades, 7-2583-89
 and Holy Roman Empire, 11-3962
 beginning of temporal power, 11-3960
 interdict on England, under King John, 5-1570
 members given civic rights in England, 7-2298
See also Pope, head of church; Monks; Saints
- Cato, Marcus Porcius**, censor of Rome, 4-1364
 writings, 16-5910
Picture, portrait, 16-5907
- Cats**
 * Big cats and little cats, 2-493-502
 and seeing in the dark, 5-1807
 drawing of, how to make, 11-3855
 Egyptian, ancestor of domestic cat, 2-501

GENERAL INDEX

Cats (continued)

- fables about, by *Aesop*
- Belling the cat, 2-540
- Cat and the mice, 13-4752
- first appearance in geologic eras, 5-1784
- hair standing on end, 4-1420
- kept in post offices, 8-2658
- native cats of Australia, 7-2509
- sensitive to high-pitched notes, 18-6439
- story about, Fox and the Kitten, 7-2352
- Poems about*
- Cat's Tea-party, 5-1782
- Dobbin's Friend, by M. M. Dodge, 5-1887
- Kitten and the Falling Leaves, by William Wordsworth, 14-4956
- Retired Cat, by William Cowper, 5-1780
- Questions about*
- Do cats and dogs ever cry? 17-6179
- What happens inside a cat when it purrs? 18-6694
- Why does a cat always fall on its feet? 8-2719-20
- Picture* (graveure), 2-497-98
- Cat's-ear, weed, 19-6940
- Picture*, with note, 19-6931
- (in color) 14-4996
- Cat's valerian, *see* Valerian—Great or Cat's
- Catseye, semi-precious stone
- Picture* (in color), facing 19-7225
- Catsheads, of a ship, 14-5003
- Catskill Aqueduct. Carries water to New York City.
- description and pictures, 14-5054-60
- Catskill Mountains. A group of mountains in New York State, west of the Hudson River; famed for scenery. The highest is Slide Mountain (4,205 ft.).
- Catspaw, how to make, 9-3378
- Cattail, plant, description, 16-5876
- Picture*, 16-5871
- Cattail grass, note and picture, 10-3653
- Cattaro. Jugo-Slav cathedral city and port on the Adriatic.
- Picture*, 17-6348
- Cattegat. Broad strait between Sweden and Denmark, forming part of the connection between the Baltic and North seas.
- Cattle
- * Great cattle family, 4-1259-64
- breeds, English, 4-1262
- descended from aurochs, 4-1260
- Hindus regard as sacred, 8-2702
- importance of, 4-1259-60
- in America, brought from Europe, 4-1261
- in Europe, 4-1260-61
- meat preparation in stock-yards, 7-2512-13
- production and industry in U. S., 9-3207
- Southern states, industry in, 13-4524
- See also* Animals—domestic; Bullocks;
- Cattle, Wild; Dairies; Meat industry and trade
- * *Pictures*, 4-1258-61
- ancient Egypt, 3-821
- breeds
- originating in Great Britain (in color) facing 4-1259
- some famous dairy breeds (in color) facing 4-1258
- various breeds of (graveure) 4-1268
- ranch in Montana, 18-6435
- scenes on Western farms, 15-5276-78
- Cattle, Wild
- in England, 4-1260
- in India, 4-1263
- Pictures*
- by Landseer, 4-1258
- wild English bull (graveure) 4-1266
- Catullus, Caius Valerius, Roman poet, 16-5910
- Caucasus, struggle against Russia, 15-5378
- Caucus. In politics, a party committee that appoints candidates and decides on policy at elections. The term originated in the United States.
- Cauliac, Gui de, *see* Chaulliac, Guy de
- Cauliflower, development from cabbage, 7-2618
- Picture*, 7-2619
- Causation
- Question about*
- Is there a reason for everything that happens? 16-5740
- Cavaliers. Name for Royalists in the English Civil War in the middle of the 17th century.
- settlement in Virginia, 2-555

Cavalry. The name given to soldiers who are trained to ride and fight on horseback.

Cave-men, *see* Man, Prehistoric and primitive

Cavell, Edith

death of, 17-6396

Cavendish, Henry, English physicist

* life and experiments, 4-1250; 16-5804

Picture, 4-1250

Cavendish, Sir Thomas. English navigator, third man who sailed round world; born, Trimley, Suffolk, about 1556; died at sea, 1592.

Caves

Carlsbad, N. M., 18-6436

Grottoes, Va., 14-4900

Mammoth, Ky., 4-1298-1304

Margaret River, Western Australia, 7-2473

Caviare, eggs of sturgeon, as food, 15-5630

Cavour, Count Camillo. Sardinian statesman, one of the chief founders of Italian liberty; born, Turin, 1810; died there, 1861.

and irrigation in Italy, 7-2544

and Italian unity, 12-4412

Cavy, animal. *Picture*, 3-1130

Cawnpore. Industrial city in the Indian United Provinces, with many tanneries and cotton, woolen and jute mills.

massacre in Indian mutiny, 8-2828

Caxton, William, early English printer

* life and work, 9-3384, 3386

printed first books in England, 5-1686

printed Malory's *Morte d'Arthur*, 1-305

Pictures, portrait, 9-3385

Edward IV visiting Caxton, 9-3387

from books printed by Caxton, 9-3381

reading proof from printing-press, 9-3387

with Abbot of Westminster, 1-302

Cayenne, *see* Guiana, French

Cayenne pepper, *see* Pepper

Cazin, Jean Charles, French painter, 7-2372

Cecil, William, *see* Burleigh, Lord

Cecilia, St., story of, 6-1998

Pictures, 6-1998; 7-2478

Cecilians, class of animals, 15-5458

Cedar bird, 9-3139; 13-4836

Cedar trees, description, 11-4105; 13-4634-36

red cedar is a juniper, 11-4105

varieties, 12-4250

Question about

What are the cedars of Lebanon? 15-5361

Pictures, 11-4105; 13-4634; 14-4911

Cedars of Lebanon, 15-5363

Celandine, plant, 17-6280

Pictures (in color)

greater celandine, 13-4880

lesser celandine, 13-4877

Celebes. One of the most important of the Dutch East Indies. It has an area of 72,000 square miles, and produces large quantities of rice, corn, sugar, spices, tobacco, coffee and timber, while gold and coal are mined. Macassar is the capital.

population, 15-5568

Celery, vegetable, 7-2616

Picture, 7-2620

Cellini, Benvenuto. Italian sculptor and craftsman; born, Florence, 1500; died there, 1571; wrote a famous autobiography.

Cells, Electric, *see* Electric batteries

Cells, Living, 2-437

* single cell, 2-661-64

discovery by Robert Hooke, 13-4669

* in blood, 3-803-06, 935-39

in muscles, 5-1804

in skin, 4-1418

made of protoplasm, 2-663

Picture, leaf cells, 2-503

Celluloid

Question about: Why does celluloid catch fire so easily? 10-3477

Cellulose, in paper-making, 3-1054

in shoes, 5-1551

Celts, or Kelts. People of the round-headed Alpine type. They are divided into two sections by their language—the P-Celts and the Q-Celts. Thus, Kinsale and Penrhyn are similar in that the first syllable is Celtic for "head." The Celts apparently migrated from Asia Minor through the Balkans up the Danube to the former Celtic lands of Bohemia, Gaul, Ireland and Britain.

art in Ireland, pictures with notes, 8-2941

entry into Ireland, 8-2929

in Great Britain, 1-321

in Switzerland, 16-6000, 6002

GENERAL INDEX

- Cement**, how made, 7-2305
- Cennini, Cennino**, book on painting, 2-698
- Cenotaph**
Question about: What is a cenotaph? 3-981
- Cenozoic age**, geological era, 2-634
- Censor**, Roman official, 4-1364
- Censorship** of press, in England, from 1530 on, 9-3389
- Centaur**. In Greek mythology, one of a race of monsters, half man and half horse.
Picture, in sculpture, by Barye, 13-4705
- Centaur**, flower
Pictures (in color), 14-4892, 4995
- Centigrade scale** of temperature, 7-2648; 14-4902; 15-5573
- Centimeter**, measure of distance, 14-4902
- Centipedes**, 16-6020
Pictures, 16-6019
- Central America**
 archaeology, museum exhibit, 18-6615
 history and description, 19-7142
 map, 19-7133
Picture, 19-7137
- Centre of gravity**, explanation, 14-5177
- Centrifugal force**, 14-5035-36
 shown by breaking of fly-wheel, 15-5364
 shown by twisting balls, 7-2380
- Centripetal force**. A force in nature which makes things in motion tend to move toward the centre. Opposite of centrifugal force.
- Century of change in art**, * 6-2229-40
- Century plant**. A popular name for the American Aloe, *Ogava Americana*, which was supposed to flower only once in each hundred years. This was a myth of course.
- Cephalopods**, class of molluscs, 16-5898
- Cephisodotus**, Greek sculptor, 12-4328
- Cerberus**, Pluto's three-headed dog, 9-3238
 and Hercules, 9-3084
- Cereal crops**
 * Great cereals, 5-1850-57
 * Story of wheat, 5-1755-63
 * What man can do with a plant, 4-1469-75
 account of, 5-1623
 cheapness as food, 7-2423
 map, showing sources, 19-7247
 various kinds as food, 7-2423-25
- Cerebellum**, part of brain, functions of, 8-2841
- Cerebrum**, part of brain, structure of, 8-2943-44
- Ceres (Demeter)**, goddess, 9-3227
- Cernauti**, Rumania, 14-4922
- Cervantes Saavedra, Miguel de**
 * Don Quixote, quotations and summary, 5-1629-38
 life and writings, 19-7127-29
- Cervera y Topete, Pascual**, commanded Spanish fleet, Santiago, 10-3590
- Cesalpino, Andrea**, see *Cesalpinus*
- Cettinje**. Old capital of Montenegro, Jugo-Slavia.
- Centa, Africa**, and Prince Fernando, 4-1257
- Ceylon**, island, 9-3184
Pictures
 native girl tapping rubber, 4-1409
 rice field, 5-1857
 tea industry, 2-763-71
- Cézanne, Paul**, French painter, 8-2710, 2712
Pictures
 Portrait of himself, 8-2722
 The Smoker, 8-2709
- Chabas, Paul**, French artist, 8-2858
Picture, On the River in Summer (gravure), 8-2862
- Chad, Lake**. Large African lake in the borderland between the Sudan and the Sahara. Its area is rapidly shrinking owing to the encroachment of the desert, and a town which stood on its shore 75 years ago is now 20 miles away.
 visited by Hugh Clapperton, 2-467
- Chadwick, John White**, see *Poetry Index* for poem and note
- Cheronea, Battle of**, 338 B.C., 3-1082
- Chaffinch, European**, bird, 8-2973
Picture (in color), 9-2331
- Challu, Du**, African explorer, 2-465
- Chairs**, styles of, 18-6767-76
 toy, directions for making, 5-1765-66
Poem about
 Cane-bottomed Chair, by W. M. Thackeray, 8-2763
Pictures, 3-817; 18-6767, 6769, 6773, 6775, 6776
- Chalcedony**, semi-precious stone
Picture (in color), facing 19-7225
- Chaldæa**, in Mesopotamia
 agriculture and temples, 2-650
 architecture, 14-5208-09
 influence on Babylon, 2-650, 652
 old names for, 2-650
 picture writing, 2-650, 652
- Chalk and chalk rocks**
 description, 5-1660
 in Cretaceous period, 5-1659
 made by sea-creatures, foraminifera, 2-634
 made of shells, 7-2314
- Challener, Frederick S.**, Canadian painter, 10-3703
- Challenger**, ship, in antarctic exploration, 14-5090
- Châlons-sur-Marne**. Ancient city of Champagne, France, with many old buildings and a 13th-century cathedral. It trades in Champagne wine. Near here in A.D. 451 the Romans and Goths defeated Attila and his Huns.
- Chamber of Commerce**. An organization made up of the leading business men of a city or town to protect and promote their own commercial interests and the interests of the community.
- Chamberlin, Clarence D.**, American aviator, 1-181, 184
Picture, with plane, 1-183
- Chambers, William**, English architect, 18-6491
- Chameleons**, 14-5234
Question about
 Why does the chameleon change its color? 12-4506
Picture, 14-5233
- Chamois**, animal, 4-1378
Picture, 4-1374
- Chamois leather**, how prepared, 5-1550
- Chamomile**, flower
Pictures (in color)
 corn chamomile, 15-5397
 wild chamomile, 15-5398
 yellow chamomile, 15-5400
- Champ de Mars**. Great plain to southwest of Paris laid out in 1770 in imitation of Roman Campus Martius. It became a great parade and training ground for soldiers.
- Champagne**. French wine-growing district east of Paris, in the basins of the Seine, Aisne and Marne. Rheims and Epernay are the chief centres of the wine trade; other towns are Troyes, with large textile industries, and Châlons-sur-Marne.
- Champaigne, Philip de**, Flemish artist, 5-1874
- Champlain, Samuel de**, French explorer
 * account of, in Canada, 2-679-80
 expeditions, 2-679
 founded city of Quebec, 2-680
 made Five Nations hate France, 1-246, 248
Pictures
 portrait, 1-245
 surrendering to English, 2-681
- Champlain, Lake**, discovery, 2-680
- Champollion, Jean François**, study of Rosetta Stone, 10-2548
- Chancel**, invented first match, 1-309
- Chancellor, Richard**, opened trade with Russia, 5-1817; 8-2982
- Chancellorsville, Battle of**, 7-2436
- Chancery, Courts of**, 13-4812
- Channel Isles**, cattle from, 4-1262
- Chanson de Roland**, see *Song of Roland*
- Chanute, Octave**, pioneer aviator, 1-172
- Chapais, Thomas**, French Canadian author, 15-3397
- Chaparral-cock**, belongs to cuckoo family, 10-5367
- Chapultepec** (Hill of Grasshoppers). A rocky hill on the outskirts of the city of Mexico. The Aztecs used it as a site for some kind of worship. At the end of the 18th century the Spanish viceroy built a palace on the hill. Later the Emperor Maximilian made this palace his headquarters. It is now the presidential residence. A military school and an observatory are also situated on the hill. In 1847 it was taken by the United States.
- Characin**, fish
Pictures, (in color), 16-5785
- Charades**, 15-5511; 18-6521, 6640
Christmas charade, 7-2650-51
- Charcoal**, use in smelting iron, 6-1936
- Charcot, Jean**, Antarctic explorer, 14-5094
- Charcot, Dr.**, and hypnotism, 12-4444
- Charderon, Francine**, artist
Picture, Sleeping Child, 14-4941

GENERAL INDEX

- Chardin, Jean Baptiste Siméon**, French painter, 5-1882
Picture, Grace before Meat, 5-1875
- Chardonnet, Count Hilaire de**, discovered artificial silk, 13-4828
- Chares of Lindus**, sculptor of Colossus of Rhodes, 7-2604
- Chargé d'affaires**. Official in diplomatic service. He acts with full powers at minor courts, and may take charge of affairs in the temporary absence of an ambassador.
- Charge of the Light Brigade**. Charge of 600 Light Dragoons, Lancers and Hussars at Balaclava in the Crimean War, October 25, 1854.
- Chariot**. The ancient chariot was a two-wheeled car or vehicle used in war, in racing and in processions as well as in the comings and goings of daily life. In the time of Queen Elizabeth of England the word had come to mean a four-wheeled state coach. Later it was used to describe an ornate pleasure vehicle.
- Chariot**, toy, directions for making, 15-5334
- Charities**, characters in mythology, 9-3228
- Charity**
 story about, King's Guest, 16-6029
Poems about
 Ahab Mohammed, by J. M. Legaré, 18-6755
 Queen and the Flowers, by Alfred Austin, 6-2033
- Charlemagne, or Charles the Great**
 and Alcuin, 14-5248
 and the Netherlands, 15-5558
 in French folklore, 18-6559-60
 influence on architecture, 16-5725
 lands ruled by, 11-3960
 reign of, 10-3430
Picture, with school children, 10-3433
- Charles I**, king of England
 * life and character, 11-3845-47
 and Earl of Strafford, 11-3850
 and Nova Scotia, 2-682
 appearance, in Van Dyck's portraits, 11-3845
 Carolina grants, 2-553
 reign, and Civil War, 6-1976-78
Pictures
 portrait, by Van Dyck, 11-3848
 portrait, with parents, 15-5615
 portrait, with William Harvey, 8-2727
 scenes in life, 6-1972, 1975
- Charles II**, king of England
 * reign of, 6-1979-81
 and William Penn, 2-552-53
 Carolina grants, 2-553
 defeat at Worcester, as Prince Charles, 6-1978
 granted charter to Hudson's Bay Co., 12-4338
 invited to be king of Virginia, 2-555
- Charles I, the Great**, king of France, *see* Charlemagne
- Charles III, the Simple**, king of France, gave land to Northmen, 10-3431
- Charles V**, king of France, encouraged art, 4-1221
- Charles VII**, king of France, and Joan of Arc, 10-3434; 16-5820
- Charles IX**, king of France, 10-3434
- Charles X**, king of France, 10-3572
- Charles V**, king of Spain and Holy Roman emperor, 14-5044
 and the Netherlands, 15-5560
 reign of, 11-3963-64
- Charles XII**, king of Norway and Sweden, 15-5294
- Charles XIV (originally J. B. J. Bernadotte)**, king of Norway and Sweden, 15-5294
- Charles Martel**, Frankish ruler
 at battle of Tours, 10-3430
- Charles of Orleans**, medieval French poet, 18-6560-61
- Charles River**, Massachusetts
Poem about: To the River Charles, by H. W. Longfellow, 7-2638
- Charles's Wain**, name for constellation Great Bear, 6-1971
- Charleston**. Capital of the State of West Virginia, situated at the confluence of the Kanawha and Elk rivers. It is an important shipping point for coal, salt and timber. Axes, glass, engines, furniture, fire-brick and boilers are important manufactures. Natural gas, coal and oil are found in the neighborhood.
- Charleston, S. C.**, notes and pictures, 14-4899
Picture, St. Philip's church (gravure), 18-6685
- Charlock**, wild mustard, description, 15-5393-94
 yields product mustard, 8-2996
Picture, 15-5393
- Charlotte Amalie**, *see* St. Thomas
- Charlottetown**. Capital of Prince Edward Island. Founded by the French in 1750 and known as Port la Joie. Passed to the British in 1763 and renamed in 1768 for Queen Charlotte.
- Charon**, character in mythology, 9-3238
- Charpentier, Charlotte**, wife of Sir Walter Scott, 7-2626
- Charter**, Great (Magna Carta), *see* Magna Carta
- Charter Oak**. A tree in Hartford, Connecticut, around which an American historical legend grew up. In 1687 Governor Andros demanded the surrender of the colonial charter by the colonists. Captain Wadsworth hid the document, it is said, in a hollow tree, where it remained for two years. The oak was blown over in 1856, but a monument has been erected to mark the spot.
- Chartres**, France, cathedral, 17-6158-59
Pictures
 cathedral (gravure), 17-6169
 details of cathedral, 17-6157
- Chartreuse, La Grande**. French Carthusian monastery, founded by St. Bruno in 1084. The vast 17th-century building near Grenoble is now the property of the French Government.
- Charts**, sea maps, use by ships, 12-4427-28
- Charybdis**, personified whirlpool
 in mythology, 9-3236
 description of whirlpool, 17-6284-85
- Chase, William M.**, American painter, 9-3336
Picture
 From a still-life painting, 9-3325
- Chat, Yellow-breasted**, variety of warbler, 13-4840
- Château de Blois**, *see* Blois
- Château de Pierrefonds**, *see* Pierrefonds
- Château-Thierry**. During the World War, from July 15th to 18th, 1918, American troops successfully held the German forward movement at Château-Thierry, France.
- Châteaubriand, François, Vicomte de**. French philosophic writer, the most famous of his day; born, St. Malo, 1768; died, Paris, 1848.
 influence on France, 18-6716
- Châteaux**, *see* Castles
- Chatham, 1st earl of**, *see* Pitt, William, 1st Earl of Chatham
- Chatham Island**, population, and nation ruling, 9-3188
- Chattahoochee River**. American river, rising in Habersham County, Georgia. Flows into Apalachicola River. 500 miles.
- Chattanooga, Tenn.**, notes and pictures, 14-4897
- Chattel**. Personal property, wealth, goods or stock that can be transferred or moved.
- Chatterers**, birds, account of, 9-3286
Pictures (in color)
 pompadour chatterers, 10-3621
 red chatterer, 12-4371
- Chatterton, Thomas**, English poet, 6-2027
- Chaucer, Geoffrey**, English poet, 1-100
 * life and writings, 1-300-05
 * Canterbury Tales, summaries of parts, 13-4767-73
 father of English poetry, 1-321
See also Poetry Index for poem and note
Pictures
 reading his poems, 1-298
 with poem of Occleve, 1-299
- Chauliac, Guy de**, medical writings, 8-2725
- Chaulieu, Gni de**, *see* Chauliac, Guy de
- Chavez**, Peruvian aviator, 1-174
- Chebec**, bird, 13-4832
- Checkerberry**, *see* Wintergreen
- Checkers**, how to play, 15-5338
- Checks, Bank**, save use of money, 16-5682
- Cheer Boys, Cheer, Sebastopol is Taken**, song, origin of, 10-3608
- Cheese**
 food value, 7-2325
 microbes that help make, 2-558
Cheese, Cottage, how to make, 2-896
Cheese-box, how to make table from, 14-5006
Cheetah, animal, description, 2-501
Picture (gravure), 2-500
- Chemicals**, use in industry, 13-4530-31
- Chemistry**
 * Chemistry in the world's life, 13-4529-32

GENERAL INDEX

Chemistry (continued)

- * compounds, 12-4403-06
- compounds made by protoplasm, 2-664
- * How the elements are built up, 12-4289-92
- use of in fireworks, 13-4825
- * Wonder of matter, 12-4155-59
- See also Electro-chemistry; Elements, Chemical
- For list of main articles, see 20-7622-23
- Chenab Canal**, in India, 7-2544
- Chenonceaux, Château of**, *Picture*, 18-6501
- Cheops**, Egyptian king, see Khufu
- Cheops, Pyramid of**, see Pyramids of Egypt
- Chepman, Walter**, early printer, 9-3386, 3388
- Cher Ami**, pigeon, story of, 7-2319
- Poem about Cher Ami*, D. S. C., by H. W. Farrington, 6-2151

Cherbourg, French city, 11-3821

Cherries

- wild, 11-4020; 12-4383, 4394; 13-4778-79
- Question about*, Why is there a stone inside a cherry? 7-2362

Pictures, 6-2061

- wild, 13-4779
- wild, flower of, 13-4880
- wild, fruit of, 11-4027
- wild, red, 11-4023
- wild, showing tree, flower, leaf, 12-4394

Cherry, Andrew, song-writer, 10-3608

Picture, portrait, 10-3605

Cherry-bird, 13-4836

Cherry galls, cause of, 10-3580

Chervil, flower

Picture, rough chervil (in color), 13-4877

Chesapeake, ship, defeat by Shannon, 5-1704; 17-6330

Chesapeake and Ohio Canal, 13-4787

Chesapeake Bay. Deep inlet in the east coast of America, receiving the waters of the Susquehanna, Potomac, Rappahannock and James rivers. Near its head is Baltimore.

Chess, how to play, 5-1771

Chess apples, whitebeam's fruit, 12-4382

Chestnut trees

- destruction by fungi, 12-4515
- not related to horse-chestnut, 12-4382
- note on, 12-4511

uses, 12-4515

varieties, 12-4248

Pictures, 12-4511

Spanish chestnut, 12-4259

Chestnuts, account of, 6-2276, 2278

Pictures, 6-2274; (in color) 11-4025

Chevet, architectural term, 16-5720

Cheviot Hills. Range stretching for about 35 miles between England and Scotland. Cheviot, 2,676 feet high, is its highest point.

See also 4-1436

Chevrotains, or mouse deer, 4-1448

Chew, engineer, heroism of, 9-3066

Cheyenne. Capital of Wyoming, and a stock-raising centre. Annual celebration of Frontier Days at Cheyenne is a great event.

Cheyenne River. American river, rising in eastern Wyoming. Flows into Missouri River. 500 miles.

Chibchas, Indian tribe of South America, 19-6858, 6860

conquest by Spain, 19-6862

Chicago, Ill.

* history and description, 19-7105-24

Art Institute, 19-7122

Board of Trade Building, with picture, 19-7111

Cahokia Court House, 19-7112

convention city, 19-7124

Field Museum of Natural History, 19-7122

fire in 1871, 19-7110, 7112

industrial and commercial centre, 17-6044

industry and trade, 19-7118, 7120

influence on mural painting, 10-3452-53

libraries, 19-7122

music, 19-7122, 7124

name, origin of, 19-7106

parks, 19-7120-22

plan for improved city, 19-7117

population, 1920, 8-2676

population, races represented, 19-7117-18

railroads, 19-7107

Sauganash Hotel, 19-7107

schools and colleges, 19-7122

sculpture, 14-1938

from B. F. Ferguson fund, 19-7124

transportation facilities, 19-7119

Union Station, note and picture, 19-7109

Chicago (continued)

water supply, 19-7107

World's Columbian Exposition, 8-2670; 19-7112

influence on architecture, 18-6684

writers, 19-7124

Pictures

municipal stadium, 7-2312

stockyards, 9-3209

views past and present (gravure),

19-7113-16

See also starred article above

Chicago Drainage Canal, 17-6044; 19-7110

Chicago River made to flow backward, 19-7110

Chicago University, 19-7122

note and picture, 19-7123

Pictures, 19-7108-09

Chickadees, birds, 13-4764, 4766

in western North America, 14-5138-39

Pictures

group of, 13-4764

chestnut-backed chickadee (in color) facing 14-5140

Oregon chickadee (in color) facing 14-5140

Chickamauga, Battle of, 7-2436

Chicken hawks, see Hawks—Cooper's hawk

Chicken snake, 15-5414

Chickens, see Poultry

Chickering, Jonas, made iron frame for grand piano, 5-1796

Chickweed, description, 15-5394-95

Picture, 15-5395

Chicory, account of, 15-5388-89

used with coffee, 7-2624

Pictures, 15-5389; (in color) 15-5612

Chiff-chaff, bird

Picture, (in color) 8-2900

Chigetai, animal, 6-2020

Chigger, parasite, 16-6020

Chilblains

Question about, What causes chilblains?

9-3355

Child, Lydia Maria, see Poetry index for poem

and note

Child labor, see Children—laws to protect

Child life, see Children

Child welfare

* in N. Y. city, 15-5621-28

Childe Roland, Arthurian knight, story of, 9-3245

Children

* What a great city (N. Y.) does for children

15-5621-28

and alcohol, 8-2682

aptitudes, 12-4181-82

care and hygiene in N. Y. city, 15-5622, 5624

courts for, 14-4916

duties of, in verse, 8-2768

first use in sculpture, 12-4467

food suitable for, 11-3958

* in America, colonial period, 3-965-76

in China, 2-435

in Germany, 12-4167

in Japan, 2-572, 574

laws to protect, 14-4915-16

libraries for, 15-5621, 5628

play, value of, 8-2841

table of height and weight, by ages, 9-3257

See also Boys

Poems about

All the Children, 9-3276

Babyland, by George Cooper, 17-6379

Be Patient with the Children, 14-5240

Children's Hour, by H. W. Longfellow,

14-4955

Good-Children Street, by Eugene Field,

9-3230

Pittypat and Tippytoe, by Eugene Field,

10-3484

The Discoverer, by Edmund Clarence Sted-

man, 16-5865

What Bobbie Would Like, by F. E. Weather-

ly, 12-4370

Questions about

Is it true that children will rule the world?

14-4987

Why are some things not good for children?

8-1877

Children's Crusade, story of, 7-2588

Children's literature, American, 14-5014-16

Chile

description, 19-7038, 7040

* history, 19-7036, 7038

GENERAL INDEX

Chile (continued)

natural resources, 19-7038
navy of, note and picture, 19-7039
nitrate industry, 19-7038
races in, 19-7040
ruins of, 19-6980
Tacna and Arica, possession of, 19-7038
war with Bolivia, 19-6978
war with Peru, 19-6980, 6982
Pictures, 19-7039, 7049, 7050

Chili, see Chile

Chilli, Mexican name for capsicum, 8-2992
Chillingham cattle, England, 4-1260
Chillon, Castle of, note and picture, 16-5999
Chimborazo, volcano, height of, 7-2313
Chimera, imaginary creature, 1-356
Chimney swallow, see Swallows—chimney
Chimneys

Questions about

Why are some chimney pots very long and bent? 3-1116
Why does a chimney smoke? 8-3014
Why does a factory have a tall chimney? 4-1232
Why does smoke go up the chimney? 8-3015
Why must a big chimney have such a broad base? 7-2487

Chimpanzee, account of, 1-208

Pictures (gravure), 1-209, 211-12

China

* description and history, 2-421-36
adoption of Western military methods, 2-433
ancestor worship, 2-436
architecture, see Architecture, Chinese
as a republic, 2-436
cities, pictures, with notes, 2-431, 434-36
commerce, early times, 2-429
customs, with pictures, 2-430
girls, customs concerning, 2-436
examination centres, 2-434
foot-binding, 2-436; 18-6455
Great Wall, 2-424, 429, 435
early Chinese writings found in, 3-1054
Pictures, 2-421, 435; (gravure), 2-426
houses and dwellings, 5-1657
language, see Chinese language
legends and stories, 5-1579-80
Story of the willow-pattern plate, 4-1532
literature, see Chinese literature
map, 2-423
Marco Polo's description, 1-84-85
population, 2-421; 5-1605
porcelain-making, 5-1664
queue (pigtail), introduction by Manchus and recent abolition, 2-436
railroads, 2-434
relations with Mongolia, 18-6588
relations with Western nations, 2-432-34
religions, 9-3088-92
rice cultivation, 5-1854, 1856
silk industry, 15-5307
size, 2-421
stamps, rare, 16-5887
Taiping rebellion, 2-432-33
tea production, 2-761-72; 7-2532, 2536
World War, part in, 2-436
See also Chinese

* *Pictures* (partly gravure), 2-421-35
children at school, 5-1605
Faux-Namiti Bridge, 1-37
house of upper class, 5-1657
rice fields among the mountains, 5-1853
rubber tappers, 4-1405
tea industry, 2-763-72
water-wheels, 15-5431
women with small feet, 18-6455

China (porcelain), see Pottery

China grass, account of, 8-2788

cloth from, 5-1627

China Sea. Part of the Pacific lying west of the chain of islands fringing eastern Asia. It includes the Yellow Sea and the Gulf of Siam, its chief ports being Nagasaki, Shanghai, Foochow, Canton, Hong-Kong, Manila and Singapore.

Chinch-bug. A small black bug with white wings which is very destructive to wheat and other grains in the United States and the West Indies.

Chinchilla, animal. *Picture*, 3-1131

Chinchona, see Cinchona

Chinese

in Japan, 2-562

Chinese (continued)

in Korea, 2-562
paper, invention and use of, by Chinese, 3-1053-54; 10-3550
silk discovered by, 15-5307
Poem about: Heathen Chinee, by Bret Harte, 4-1381

Chinese encyclopedias, 2-429, 432

"Chinese Gordon," see Gordon, Charles George
Chinese-Japanese War, 1894-95. Broke out over trouble between the two nations in Korea. China was defeated on land and sea, and in the Treaty of Peace signed April 16, 1895, she had to give Formosa to Japan, grant independence to Korea and pay a heavy indemnity to Japan.

Chinese language, 15-5460

geographical names, 2-421-22

no alphabet, 10-3548

Chinese literature

classics, 15-5460
general subjects of, 15-5460
poetry, example of, 15-5460

Chinese stories, see China—legends and stories

Chinese wall, see China—Great Wall

Chinkapin, nut, 6-2278

Chinquapin, see Chinkapin

Chintreuil, Antoine, French painter, 7-2370

Chipmunks, 3-1128

legend about: Why the chipmunk has black stripes, 17-6204

Picture, 3-1129

Chippendale, Thomas, English furniture-maker, 18-6768, 6770

Chisel, tool, how to use, 1-233

Chital, animal, 4-1446

Chitons, molluscs, description, 19-6889

Picture, shell, 19-6886

Chivalry, see Knights; Arthur, King

Chlorine, part of salt, 3-925

use to purify N. Y. water, 14-5060

Chloroform

discovery of use as anæsthetic, 8-2729-30

effect on life, 2-662

Chlorophyl, green coloring matter in plants

absent in fungi, 10-3723

in seaweed, 4-1276

necessary to make protein, 6-2188

use, 2-615-16

Chocolate, account of, 7-2536

how to remove stains of, 2-618

Chocolate creams, recipe, 11-3856

Chokeberries, 13-4777-78; 16-5730-32

fruit of, 12-4512

Picture, 16-5730

Choking, cause and cure, 4-1328

Chomedey, Paul de, see Maisonneuve, Sieur de

Chopin, Frédéric François, Polish musical composer, 13-4686; 19-7150

* life and work, 19-6921-22

friendship with George Sand, 19-6922

Picture, portrait, 19-6912

Chopin, René, French Canadian poet, 14-5110

Chopsticks, use in China, with picture, 2-430

Choughs, birds, 8-2892, 2894

Picture (in color), 9-3281

Chousingha, animal, 4-1444

Christ, see Jesus Christ

Christchurch, New Zealand, 7-2572, 2576

Pictures, 7-2580

Christian art and symbolism, early forms, 2-575-82

Christian Science, founded by Mrs. Eddy, 14-5269-70

Christiania, see Oslo

Christianity

history

Constantine gave liberty to, 2-578

* Early leaders of the church, 8-2843-50

* Some famous monks, 13-4859-69

in early France, 10-3429-30

introduced into

Denmark, 15-5292

England, 4-1322, 1430

Ireland, 4-1434

Norway, 15-5292

* influence on art, 2-575-82; 12-4470

persecutions under Marcus Aurelius and

Diocletian, 5-1865-66

persecutions under Nero and Domitian, 5-1862-63

See also Missionaries; Saints

Poem about. Paulinus and Edwin, by F. T. Palgrave, 6-2246

GENERAL INDEX

Christina, queen of Sweden, and colony, New Sweden, 2-552

Christmas

carol-singing custom, 17-6105
carols, *see* Christmas—poetry
celebration of, 6-2094
charade, 7-2650-51
gifts should be addressed carefully, 8-2656
in Plymouth colony, Massachusetts, 3-974
in Puritan colonies, 6-2094
Santa Claus, and Christmas customs, stories about, 17-6102-04
* Christmas Carol, by Dickens, summary, 17-6115-21
Tale of Christmas Eve, 17-6098-99
tree for birds, how to make, 7-2381
Poetry
A Christmas hymn, by Alfred Domett, 18-6466
Birth of Christ, by S. C. Hamerton, 17-6108
Christians, Awake! by John Byrom, 17-6106
Christmas Carol, by J. G. Holland, 14-4955
Christmas Morning, by Edwin Waugh, 17-6107
God Rest You Merry, Gentlemen, 17-6105
Good King Wenceslas, 3-844
Hymn on the Nativity of my Saviour, by Johnson, 17-6107
Little Children, Wake and Listen! 17-6108
Old Christmas, by Mary Howitt, 9-3275
Old Christmas, by Sir Walter Scott, 17-6106
Once in Royal David's City, by Mrs. Alexander, 17-6108
The First Nowell, 18-6466
Three Kings, 18-6465
Visit from St. Nicholas, by C. C. Moore, 4-1517

Christmas basket, for dolls, 6-2043

Christmas Carol, by Charles Dickens, summary, * 17-6115-21

Christmas Gymkhana, a party, 7-2517

Christmas Island. Lonely British island in the Indian Ocean, under Straits Settlements administration. Its 2,000 people work its phosphate deposits.

Christmas rose, flower, 19-7170

Picture and note, 14-4979

Christofori, made first piano, 5-1796

Christopher, St., story of, 6-1992

Picture, 6-1993

Chromatic scale, in music, 18-6698-99

Chrome leather, definition, 5-1550

Chromonica, improved harmonica, 19-6963

Chronometers, clocks for ships, 12-4422, 4427
invented by Harrison, 17-6404, 6406
paper, how to make, 12-4500

Chrysanthemum

wild Chinese flower is ancestor of all chrysanthemums, 2-594

Pictures, different varieties (gravure), 19-7177-78

Chrysoberyl, precious stone

Picture (in color), facing 19-7225

Chrysolite, 19-7230

Picture (in color), facing 19-7225

Chuck-will's-widow, bird, 9-3372; 14-5022

Chungking. Chinese port on the upper Yangtse-kiang, with an immense trade in skins, timber, leather, furs and silk. The port was not opened to foreign trade until 1891.

Church, Frederic E., American painter, 9-3332-33

Pictures, Cotopaxi, 9-3335

Parthenon (gravure), 10-3458

Church

clergy, power, and reasons for, 8-2843

history, *see* Christianity—history; Missionaries

organization, Middle Ages, 8-2843

Church and State in Middle Ages, 8-2844, 2846-47

Church architecture

American, 18-6680-82, 6689

of New York city, 17-6214, 6216

Belgian, 15-5502

Byzantine influence, 2-580-81

* early Christian churches, 2-578-80; 16-5715-25

English, 16-5963-72

French, Renaissance influence, 18-6496, 6498

* Gothic, 17-6113-62

Italian, 17-6162-64

Renaissance and Baroque influence, 18-6500

Romanesque style, 2-581; 16-5719-20, 5725

Church architecture (continued)

Spanish, 17-6164

Renaissance influence, 18-6502

See also Cathedrals

* *Pictures*, 16-5965; (gravure) 16-5721-24; 17-6165-72

American (gravure) 18-6685-86

American country church, showing Greek influence, 18-6681

English, 16-5963-65; (gravure) 16-5973-76

German (gravure) 12-4173, 4176-78, 4180

Churchill, John, *see* Marlborough, 1st duke of

Churchill, Winston. American historical novelist; born, St. Louis, 1871. *See* 13-4823

Churns, description and use, 1-373

Question about: Why does a milk churn taper at the top? 10-3477

Pictures and notes, 1-382

Cibber, Colley, *see* Poetry Index for poem and note

Cicadas, insects, 17-6072

Picture, 17-6063

Cicero, Marcus Tullius, Roman orator, 4-1198; 4-1368

as a writer, 16-5911

Picture, portrait, 16-5907; (in group) 4-1367

Cid, The, literary collection, 19-7127

Cigar boxes, objects made from

cabinet, 15-5597

toy violin, 9-3113-14

Cilia, lining of windpipe and bronchi, functions, 4-1329

Cilicia, transferred from France to Turkey, 18-6678

Cima, Giovanni Battista (da Conegliano), *see* Cima da Conegliano

Cima da Conegliano, Italian painter, 3-1104

Cimabue, Giovanni, Italian painter, 2-697

work in Florence, 5-1736

Pictures, portraits, 5-1734-35

Betrayal by Judas (gravure) 2-696

Cimarron River. American river, rising in Raton Mountains, New Mexico. Flows into Arkansas River. 650 miles.

Cinchon, Countess of, cinchona named for, 8-2910

Cinchona, tree, account of, 8-2909-10

Pictures, 8-2913; leaf and flower (in color) 8-2999

Cincinnati, Ohio. City finely built on two plateaus on the right bank of the Ohio River. Cincinnati has a large waterfront; its many industries include men's factory clothing, malt liquors, foundry and machine-shop products, printing and pork-packing.

commerce and industries, 17-6046

settlement, date of, 17-6047

Pictures

view of city, 17-6047

where Ivory soap is made, 17-6039

Cincinnatus, Roman hero, story of, 4-1193

Cinderella, story of, 19-7222-24

Cinema, *see* Moving pictures

Cinnamon, 8-2995

Pictures

harvesting and preparing for market, 8-2993

plant (in color) 8-2998

Cinquefoil

marsh cinquefoil, 16-5731, 5734

Picture, marsh cinquefoil, 16-5731

Pictures (in color), 16-5882

creeping cinquefoil, 13-4878

spring cinquefoil, 14-4994

Cintra, Portugal

Picture, Castle of Pena, 14-5189

Cipango, old name for Japan, 2-564

Cipher, in The Gold Bug, 5-1900-04

Circassians of Russia, 16-5850

Circe, sorceress, 6-1986; 9-3236

Picture (gravure), 9-3232

Circle

area of, 3-1113

drawings from, 5-1658

360 degrees, origin of, 11-4132

Question about. Can we square a circle? 3-1113

Circulation of blood, *see* Blood—circulation

Circus Maximus, Rome

Picture, chariot race, 10-3744

Cirrhitid, fish

Picture, banded cirrhitid (in color) 16-5788

Cirrus clouds, description, 8-2923

Picture, 8-2926

GENERAL INDEX

- Ciscoes**, fish, belong to salmon family, 15-5635
Cities in mediæval Germany, 11-3963
Question about: How do garden cities differ from other cities? 7-2612
Citizenship, duties of, 19-7185-86
Citron, 6-2058, 2060
Citrus fruits, account of, 6-2057-60
 scale checked by ladybirds, 13-6730-31
Civets, animals, description, 2-502
Picture (gravure), 2-500
Civil War, American, 7-2427-44
Civilization
 depends on differences in people, 19-6878
 Greek influence on, 2-708-09
Clams, description, 19-6888
Clapperton, Hugh, African explorer, 2-467
Picture, portrait, 2-465
Clara, St. (1194-1253). Abbess who was born at Assisi and entered a Benedictine nunnery against the wishes of her parents. She was much influenced by St. Francis, and founded the order of Poor Clares.
Clare, John, English poet, 12-4228
See also Poetry Index for poem and note
Picture, portrait, 12-4227
Clare, Richard de, 2d Earl of Pembroke, and Ireland, 8-2932
Clark, Captain A. H., writer on clipper ships, 11-3919
Clark, George Rogers (1752-1818). American soldier and Indian fighter who played an important part in the American Revolutionary War. His conquest of the Northwest strengthened the claims of the American commissioners in negotiating peace in 1782-83. The Virginia Legislature granted him a tract of land for his services.
Clark, William, *see* Lewis and Clark expedition
Classical art, *see* Art, Classical
Claudius I. Roman emperor, 5-1861-62
Picture, statue of, 5-1861
Claudius, Appian, made Appian Way, 8-3016
Clavichord, musical instrument, invention of, 5-1796
Pictures, 5-1795; 19-6901
Claws
Question about: Why must we cut the claws of caged birds? 12-4400
Clay, Henry, American statesman, life, 10-3490, 3492
Picture, portrait, 10-3493
Clay, Maud Hogarth, artist
Picture, Horses in the Harvest Field, 6-2011
Clay
 holds water on earth's surface, 6-2249
 making objects from, directions
 blocks, 9-3248
 tea tiles, 13-4620
 dishes, 7-2512; 14-5199-5200
 toy food for dolls, 6-2043-44
 use for pottery, 5-1663
Clayes, Gertrude des, Canadian painter, 10-3704
Clayton, Dr., experiments with coal-gas, 3-990
Clayton-Bulwer Treaty, 1850. A treaty between the United States and Great Britain in which both nations agreed to respect the neutrality of the proposed canal across the Panama isthmus. This treaty was abrogated in 1901 by the Hay-Pauncefote Treaty.
Claytonia, 17-6275
Cleaning, directions for, various articles, 15-5335
Question about: Why does hot water clean things better than cold? 4-1355
Cleisthenes, Greek leader, 3-1074
Clematis, flower, description, 19-7170
Pictures, 19-7169
 double-flower (gravure), 19-7174
 Lord Neville's, flower of (gravure), 19-7174
Clemenceau, Georges. Premier and Minister of War, France, November 16, 1917, to January 7, 1920. Famous French statesman and journalist. Born, 1841. One of the great organizers of victory over Germany. Presided at Peace Conference at Versailles in 1919.
Clemens, Samuel Langhorne
 life and writings, 13-4817-18
Pictures, portrait, 13-4817
 home in Hartford, Conn., 13-4815
Cleopatra, queen of Egypt
 and last of the Ptolemies, 3-821
 kept Antony in Egypt, 4-1368
Cleopatra's Needle, *see* Obelisks
Clerac, and microphone, 17-6246
Clerk Maxwell, James, Scotch electrician and electromagnetic theory, 4-1253
 and printing pictures in color, 9-3390
 and theory of light, 16-5809-10
 electrical discoveries of, 17-6238, 6241
Picture, portrait, 17-6235
Clermont, France, meeting at, before First Crusade, 7-2584
Clermont, Fulton's steamboat, 17-6400
Picture, 17-6399
Clethra, shrub, account of, 15-5608
Picture and note, 15-5604
Cleveland, Mrs. Frances Folsom, wife of Grover Cleveland, 2-396
Picture, portrait, 2-391
Cleveland, Grover, president of U. S. administrations, 8-2670-71; 11-3943-44
 * life of, 19-7193-96
Pictures
 portraits, 19-7194; (gravure), 11-3946
 home in Princeton, N. J., 19-7195
Cleveland, Ohio. On the south shore of Lake Erie, the chief port of entry on the Great Lakes and the second largest manufacturing centre. The city is finely situated on elevated land. Its most important manufactures are iron and steel and kindred industries. The making of women's clothing, printing and publishing, and shipbuilding are also leading industries. It has a unique plan of regulating its street railways.
Pictures, 17-6043
Click beetles, 18-6628
Cliff-dwellers, Indian, 5-1657
 ancestors of Hopi Indians, 9-3028
 Colorado cliff-dwellings, 7-2290
Pictures, 1-163; 18-6427
See also Pueblo Indians
Clifford, Edward, artist
Picture, portrait of Father Damien, 7-2321
Climate
 * The rain that raineth every day, 8-2921-24
 * What climate means to us, 8-2663-68
 * Why the seasons come and go, 8-2791-94
 causes, 6-2171
 continental, definition of, 8-2666
 extreme, definition of, 8-2666
 influence on art, 6-2229
 influence on industry and progress, 8-2668
 maritime, definition of, 8-2666
 seasons, explanation of, 8-2791-94
Question about: Why is it hotter at the Equator than in Maine? 9-3101
 For full list, *see* 20-7621
Clinton, De Witt (1769-1828). An American lawyer and politician. His great service was the promotion of the Erie Canal project.
 and Erie Canal, 13-4882-86
Pictures, portrait, 5-1694
 locomotive named for, 5-1611
Clinton, George, vice-president of U. S.
Picture, portrait (gravure), 11-3948
Clinton, Sir Henry (1738-95). British soldier, who held important command in America from 1775 to 1782; commander-in-chief from 1778. in the South, 4-1166
 refuses to reinforce Cornwallis, 4-1172
 unable to save André, 11-3996
Clintonia borealis, plant, 17-6279
Clio, muse of history, 9-3228
Clipper ships, 11-3919-20
Picture, Flying Cloud, 11-3917
Clisthenes, *see* Cleisthenes
Clive, Robert. English general and statesman; born, Styche, Shropshire, 1725; killed himself, London, 1774; conquered Bengal by the battle of Plassey, 1757.
 in India, 6-2100; 8-2826
Clockmaker; or Sam Slick, by Haliburton, comment on, 14-5105
 * quotations and summary, 10-3527-34
Clocks
 electric, diagram and explanation, 16-5803
 how constructed, 16-5800
 learning to tell time, 6-2267
See also Chronometers
Question about: Why has an old clock four minute spaces instead of five? 6-2251
Clodion, Claude Michel, French sculptor, 13-4703
Cloisonné. Process of enameling in which the different colors of the pattern are set in compartments of metal, the whole forming a smooth surface.
Clontarf, Battle of, 8-2932

GENERAL INDEX

Close season. Period of the year when the killing of particular kinds of birds and fishes is forbidden, the object being to protect them from extinction.

Cloth

woolen and worsted, 15-5577

See also Clothing; Cotton—manufacture; Silk; Wool; Wool manufacture

Question about: Can a spider's web be made into cloth? 16-5743

Clothespin race, game, 3-903

Clothespin toy, how to make, 3-898

Clothespins, dolls made from, 3-1030

Clothing

* Plants that clothe us, 8-2783-90

harmful if tight, 4-1325

how to clean, 15-5335

obtained from plants, 5-1626

woolen, and heat of body, 15-5577

See also Sewing—mending

For list of main articles, *see* 20-7626

Questions about

Why do we wear light things in summer and dark in winter? 14-5086

Why is tight clothing bad for us? 3-3013

Clotho, one of the three Fates, 9-3228

Cloudberry, account of, 11-4019

Cloud, fruit (in color), 11-4021

Cloudburst, explanation of, 18-6692

Clouds

* formation, kinds, and description, 8-2922-28

names of classes, 14-5087

value in tempering heat of sun, 8-2924

weight of, 2-629

Poems about

My Menagerie, by Mrs. Elder, 4-1516

The Cloud, by P. B. Shelley, 18-6647

Questions about

Are new clouds always being made? 11-4134

Are the clouds part of the earth, and do they go round with it? 1-313

Can gravitation pull a cloud down? 16-5746

Does a cloud weigh anything? 10-3580

How do clouds stop sunlight? 4-1453

How does a soft cloud make a noise when it thunders? 3-978

How is it that clouds have regular shapes? 14-5087

What is it like above the clouds? 14-5220

Where are the clouds when the sky is quite clear? 13-4595

Which side of the cloud is the thunder on? 12-4280

Pictures, showing varieties, 8-2925-28

Clouet, Francois, Flemish painter, influenced by French art, 4-1227

Picture, Princess Elizabeth of Austria, 4-1224

Clouet, Jean, Flemish painter, influenced by French art, 4-1227

Clough, Arthur Hugh, English poet, 12-4231

See also Poetry Index for poem and note

Clove

Picture, tree, leaf and flower (in color), 8-2998

Clove-pink, name for carnation, 19-7170

Clover

as forage plant, 7-2410-12

bees needed for fertilization, 18-6721-22

description, 17-6128

meadow clover, note on, 17-6122

rabbit-foot clover, 14-4974-76

stone-clover, 14-4974-76

Question about: Why do farmers grow clover one year and wheat the next? 4-1453

Pictures

growing in Manitoba, 7-2411

meadow clover, 17-6122

rabbit-foot, or stone-clover, 14-4975

red clover (in color), 15-5611

white or Dutch clover, 13-4870; (in color) 14-4993

yellow hop clover (in color), 15-5612

Cloves, account of, 8-2994

large crop in Zanzibar, 9-3054

Clovius I, king of the Franks, 10-3430

Picture, baptism of, 10-3431

Clovius II, king of France

note on, and picture as boy king, 10-3431

Club-mosses, account of, 10-3724

in Carboniferous period, 3-884; 4-1296

Pictures, 10-3729

Cinett, ship, in arctic exploration, 13-4732

Cluniac Order of monks, 16-5729

Cluny, France, abbey church, 16-5720

Clyde. One of the most important rivers in the world, in western Scotland. It rises in the Lowther Hills and flows through Lanarkshire into the Firth of Clyde at Dumbarton, its basin being the chief industrial centre in Scotland and famous particularly for its shipbuilding trade. 106 miles long, it passes Lanark, Hamilton, Glasgow, Clydebank, Dumbarton, Port Glasgow, Greenock and Gourock, The Medwin, Mouse, South Calder, Kelvin, Duneaton, Douglas, Avon and White Cart are tributaries.

Clytemnestra and sacrifice of Iphigenia, 11-3808-10

Cnossus, *see* Knossus

Coach-whip, snake, 15-5414

Coal

* account of, 3-785-802

age in earth's crust, 3-786

amount mined in U. S., Great Britain and Germany, 10-3399

and iron smelting, 6-1936

anthracite, 3-788; 8-3012

use in making water-gas, 2-638

where mined in U. S., 11-3773

benzol a by-product, 13-4542

bituminous, 3-788

use in making coal-gas, 2-635

by-products from making coal-gas, and uses, 2-636

See also Coal-tar

countries producing, 3-788, 790

Antarctica, 14-5089

Belgium, 15-5498

France, mines in, 11-3818

Germany, 12-4166, 4168

Russia, 16-5854

Spitzbergen, discovery there, 13-4712

United States, 3-790; 9-3210

Central states, 17-6040

Southern states, 13-4526

depth below surface, 3-786

gases contained in, 14-5221

history of use, 3-785

made from plants, 1-157; 3-785-86; 4-1296; 7-2415-16

quantity of plants to make a seam, 4-1295

mining, 3-792, 794

machines used, 3-796-97

relation to industries, 3-788

relation to inventions, 3-790, 792

relation to World War, 3-788, 790

supply available, 3-792

supply greater than petroleum, 13-4539

See also Coal—countries producing

use for electric power, 3-794

varieties, 3-786-88

Questions about

How did men find that there is coal in the earth? 8-2718

How did the great coal forests come to be buried? 10-3581

What is the difference between anthracite and other coal? 8-3012

Why does coal burn, and not a stone? 17-6285

Pictures, 3-785-802

breakers, 3-799

diagram showing fossils in rocks, 4-1297

* making of coal-gas, 2-637, 639-45

mine in Pennsylvania, 11-3775

mines, diagrams, 3-786, 789

mines, scenes in, 3-791, 793, 795-98

storage, 3-801

truck for moving, 3-802

Coal-gas

* how made, 2-635-36

Pictures, illustrating manufacture,

2-635, 637-45

Coal-oil, *see* Kerosene

Coal Sack, hole in Milky Way, 11-3926

Coal-tar, chemical products from, 13-4531-32

Coalition. In politics the temporary combining of different parties or states to achieve a special object.

Coamings, part of a ship, 14-5003

Coast patrol, Boy Scout aid in, 12-4457

Coati, animal, 3-872

Pictures, 3-868

Cob, 16-6-2278

Cobalt (Co). A metallic element which does not occur in a pure state, but is found in cobaltite and smaltite. Oxid of cobalt is used to give the blue color to china and pottery. Canada produces 90 per cent of the world's cobalt.

GENERAL INDEX

- Cobden, Richard.** English statesman, a great advocate of free trade and peace; born near Midhurst, 1804; died, London, 1865.
- Cobogo,** animal, description, 1-315
- Coblenz,** Germany, note on, 12-4171
Pictures, 12-4171; (gravure), 12-4180
bridge across Rhine, 1-40
- Cobra-de-capello**, 15-5414
- Cobras,** snakes, 15-5414
Pictures, 15-5409
- Coca,** shrub, produces cocaine, 8-2913
- Cocaine,** drug, account of, 8-2913
- Coccosteus,** prehistoric fish, 4-1176
Picture, 4-1177
- Cochin China.** French Indo-Chinese colony, covering about 26,476 square miles, largely in the Mekong delta. The soil is very fertile, producing rice, rubber, cotton, coconuts and tobacco. Saigon, the capital, is a thriving port.
- Cochineal insect**, 17-6078
- Cochrane, Grizel,** heroism of, 10-3465
- Cochrane, Sir John,** rescue of, 10-3465
- Cock of the rock,** bird, 9-3286
Picture (in color), Columbian, 10-3621
- Cock of the woods,** name for pileated woodpecker, 13-4764
- Cockatoos,** birds, 10-3614
Pictures, 8-2756; 10-3615
Leadbeater's cockatoo (in color), 12-4369
- Cocklebur**, 14-5160, 5162
Picture, 14-5160
- Cockles,** molluscs, description, 19-6888
Pictures, 19-6882, 6886; shells (in color), 19-6894
- Cockroaches**, 17-6070
Picture (in color), facing 18-6720
- Cockshutt, Henry**
Picture, portrait, by Grier, 10-3703
- Cocoa**, 7-2536
Question about: Is cocoa good for us? 15-5366
Pictures, cacao tree and pods, 7-2535
- Coconut balls,** recipe for, 11-3856
- Coconut candy,** recipe for, 10-3771
- Coconut fibre**, 8-2788
- Coconut fudge,** recipe for, 2-752
- Coconuts,** account of, 6-2280
husk makes coir rope, 11-3791
Question about: How does the milk get into the coconut? 16-5846
Pictures, 6-2275, 2279
coconut-palm, 5-1625
gathering in Philippines, 6-2277
- Cocoons** of silkworms, description of, 15-5309
Pictures, silkworms, 15-5313, 5315-16
- Cocytus,** an infernal river, 9-3238
- Cod,** see Codfish
- Cod-liver oil**
prepared on trawlers, note and pictures, 11-4057
- Code Napoléon.** The first code of French civil law; compiled by Napoleon's direction; promulgated 30th Ventose in the year XII (March 31, 1804).
- Codfish**
eggs, number of, 15-5542
trawling for, 11-4052
Pictures, 16-5777; (in color), 16-5784
- Codfish Family,** account of, 16-5779-80
- Cody, William F.** (1845-1917). Famous American scout, known as "Buffalo Bill."
- Cœlenterata,** group of aquatic animals, 19-7060
- Coffee**
* cultivation and preparation, 6-2177-84
account of, 7-2536
brought to Arabia from Abyssinia, 18-6740
history of use, 6-2177
Question about: Why do tea and coffee keep us awake? 4-1451
Pictures
showing cultivation and preparation, 6-2177-84
leaf, flower and fruit (in color), 8-3000
loading at Santos, 19-7048
plant with flowers and fruits, 7-2534-35
- Coffer fishes**, 16-5900
Picture, 16-5895
- Cogan, Felix,** artist
Picture, Erasmus and scholars at Basle, 14-5249
- Cohesion,** force, explanation, 10-3477
in various liquids, 10-3730
- Cohosh,** Black, plant, 16-5728
- Coimbra,** Portugal. *Picture*, 14-5182
- Coimbra, University of,** founded 1290, 14-5184
- Coins** of various countries, 16-5681
tricks with, see Tricks—coin
use in making drawing of cat, 11-3855
Questions about
How did the words "In God We Trust" come on a coin? 4-1453
What are the grooves round a coin for? 11-4134
Pictures, ancient coins, 16-5680
- Coir,** coconut fibre, 8-2788
- Coir rope,** from coconut, 11-3791
manufacture, with pictures, 11-3794
- Coke**, 3-788
discovery of use in smelting iron, 6-1936
how made from coal, 6-1938
solid remainder in gas-making, 2-636
use in making water-gas, 2-638
- Colbert, Jean Baptiste,** and French art, 5-1876
- Cold,** opposite of heat
* Hot things and cold things, 15-5423-27
absolute zero, 15-5424-25
other zero points, 15-5573
sense of
exposure not felt if customary, 8-2720
located in skin, 4-1419-20
Questions about
Is our blood cold when we feel cold? 7-2485
What makes our teeth chatter when we are cold or frightened? 10-3475
Why does a piece of ice make a drink colder? 13-4827
- Cold (ailment)**
causes deafness, 9-3308
dulls sense of smell, 11-3956
Questions about
How do people catch colds from one another? 10-3580-81
Where does a cold come from and where does it go? 7-2610
Why do we get hoarse when we have a cold? 4-1354
- Cold-frame,** violets in, 5-1767
- Cold Harbor, Battle of**, 7-2440
- Cold storage,** warehouses, 2-534
Question about: Who started the idea of cold storage? 5-1607
Picture, view in warehouse, 2-533
- Cole, Thomas,** American painter, life, 9-3332
Pictures
Destruction, 9-3331
Mountain Ford (gravure), 10-3458
- Coleone, Bartolommeo,** see Colleoni, Bartolommeo
- Coloptera,** name for beetles, 18-6624
- Coleridge, Hartley,** English poet, 12-4229
Picture, portrait, 12-4227
- Coleridge, Samuel Taylor,** English poet
life, poetry, and association with Wordsworth, 7-2353-58
See also Poetry Index for poems and notes
Picture, portrait, 7-2353
- Colet, John,** English scholar, life and influence, 14-5250-51
Pictures, portrait, 14-5247
statue of, 14-5253
- Colfax, Schuyler,** vice-president of U. S.
Picture, portrait (gravure), 11-3948
- Colies,** birds, 9-3371
- Coligny, Gaspard de.** Admiral of France and Huguenot leader; born, Châtillon-sur-Loing, 1519; murdered in Paris on St. Bartholomew's Day, 1572.
- Colima,** volcano, Mexico. *Picture*, 7-2318
- Colin Clout's Come Home Again,** by Spenser, 3-1120
- Coliseum,** Rome. see Colosseum
- Collar-bone,** broken, first aid for, 13-4847
- Collecting**
boy's home museum, 11-4018
feathers, 14-5005
rocks, 13-4623
seaweeds, 15-5593-94
shells, 14-5201
stamps, 14-5111-12; 16-5887-88
wood, 16-5889
- College of the City of New York,** note and picture, 12-4312
- Colleges and Universities**
difference between, 12-4307-08
songs and college spirit, 18-6514-15
state, list of, 12-4310
* United States, 12-4307-10
- Colleoni, Bartolommeo,** statue of, in Venice, 4-1459; 13-4605

GENERAL INDEX

Colleoni, Bartolommeo (*continued*)

- Pictures*, monument and statue (gravure), 4-1468; 13-4614
Collies, dogs. *Pictures* (gravure), 2-715
Collins, Michael, Irish leader, 8-2940
Collins, William, English poet, 6-2028-29
See also Poetry Index for poem and note
Picture, portrait, 6-2029
Collodion varnish, 5-1551
Cologne, Germany, account of, 12-4172
 cathedral, 17-6161
 painters, 4-1344
 Pictures, 12-4171
 bridge of boats across the Rhine (gravure), 12-4172
 cathedral (gravure), 17-6170
Colombe, Michel, French sculptor, 13-4700
Colombia, account of, 19-6976
 Panama revolted from, 1-362
 union with other countries, 19-6975
Colombo, capital of Ceylon, 9-3184
 Picture, Hindu temple, 9-3185
Colon, not in Canal Zone, 10-3594
Colonel. An army officer in command of a regiment. Sometimes the title of colonel is conferred as an honor although the recipient is not in military service.
Colonial history, *see* Canada—history; United States—history—colonial period
Colonies, American, *see* Canada—history; United States—history—colonial period
Colonies, English, *see* England—colonies; *also* Canada; United States—history—colonial period
Colonies, Roman, purpose, 4-1194
Colonna, Vittoria. Michelangelo's friend and helper; born, Marino, near Rome, 1490; died, Rome, 1547.
Color, *see* Colors
Colorado. State in the Rocky Mountain system; area, 103,948 square miles; capital and largest city, Denver; agricultural products and stock-raising are important; silver, gold, lead, coal and petroleum are extensively produced. Abbreviation, Colo. Nickname, the "Centennial State." State flower, the columbine. Motto, "Nil sine Numine" (Nothing without God). "Colorado" comes from the Spanish word meaning "red." First settlement, thought to have been made at Denver, about 1859.
 described in Western States, 18-6425-36;
 19-6841-50
 gold rush, 1850, 18-6430
 made a state, 11-3943
 mineral wealth, 9-3208, 3210
Pictures
 almond orchard, 7-2554
 Chasm Lake, 7-2287
 civic centre, Denver, 19-6845
 flag (in color), 19-7191
 Mesa Verde Park, 7-2286; 18-6427
 mountains of oil shale, 13-4539, 4550
 mountain scenes, 18-6431, 6436
 Skyline Drive, 9-3031
Colorado beetle, damage to potatoes, 18-6732
Colorado Plateau, 19-6842
Colorado River. Longest in the United States after the Mississippi and Missouri. Rising in the Rocky Mountains, it flows 2,000 miles into the Gulf of California, draining about 225,000 square miles. Much of its basin consists of an arid plateau, but in places irrigation is being carried out.
 See also Grand Canyon

- ### Colors
- * Where color comes from, 17-6079-82
 animals can see colors we cannot, 10-3579
 complementary colors, 2-687
 differ in wave-length, 11-3922
 eye's perception of, 11-3804
 fading, reason for, 4-1354
 in fire, 16-5746
 in painting, *see* Painting—color
 in plants, 3-876
 * light and what makes it, 16-5807-12
 primary, for eye, and in painting, 11-3804
 prism separates colors, 16-5810
 produced by reflection of light, 17-6082
Questions about
 Have things any color at night? 8-2874
 How do fireworks get their colors? 13-4825
 How does color get into a bud before it is opened? 3-876

Colors—Questions about (*continued*)

- How does the seed make the color of a plant? 14-5087
 How many colors has the rainbow? 7-2486
 Is there a color our eyes cannot see? 10-3579
 Is there any color in the sea? 11-3841
 What causes the change in color of the sea? 6-2124
 Why cannot we wash the color out of soap? 16-5846
 Why do some colors change in artificial light? 7-2360
 Why does a thing go yellow with age? 14-5085
 Why, if we look at red, do we afterward see green? 2-687

- Colosseum**, Rome, 4-1200
 building of, 5-1863
 last fight at, 9-3064
 Pictures, 8-3010; 9-3065; (gravure), 4-1207
Colossus of Rhodes, account of, 7-2604; 12-4467
 Picture, reconstruction (gravure), 7-2607
Colt, Samuel, inventor of rapid-firing pistol, 19-7210
Coltsfoot, flower, description, 17-6274
Columba, St., Irish missionary, 8-2842, 2844, 2930
 Picture, first sight of Scotland, 8-2842
Columbia. Capital of the state of South Carolina, on the east bank of the Congaree River, below the junction of the Broad and Saluda rivers. Its manufactures are chiefly in cotton and fertilizers. Here is the University of South Carolina.
 Picture, ruins of Millwood, 14-4899
Columbia, fishing schooner, note and picture, 11-4058
Columbia River. Rises in British Columbia; crosses international boundary between Canada and the United States, and after flowing across Washington forms part of the boundary between Washington and Oregon, and empties into the Pacific Ocean.
 named by Robert Gray, 5-1703
Columbia River Highway, Oregon. *Picture*, 19-6847
Columbia River Plateau, 19-6842
Columbia University, N. Y. City
 King's College, note and picture, 10-3496
 Picture, with note, 12-4309
Columbian Exposition, Chicago, *see* Chicago—World's Columbian Exposition
Columbine, flower, description, 15-5602, 5604; 19-7170
 varieties and description of, 18-6665
 wild columbine, description, 17-6279
 Pictures (in color), 14-4984; (gravure) 19-7175
Columbus, Christopher
 * discovery of America, 1-86-89
 and Henry VII of England, 8-2978
 San Salvador, first American land discovered, 19-7097
 ships of, 11-3916
 Poem about. Columbus, by Joaquin Miller, 2-485
 Pictures
 portrait, 1-86
 landing in America, 1-82, 240
 telling the King of Spain his discovery, 1-87
Columbus. Capital of Ohio and a railway and commercial centre. Iron founding and the manufacture of margarine and rolling stock are the principal industries.
Columbus, packet-ship, race of, 11-3919
Columbus Day, 6-2087-88
Columns
 in Egyptian architecture, 14-5211
 in Greek architecture, 15-5343-44
 Picture
 Doric, Ionic, Corinthian, 15-5343
Combassou, birds, belong to Weaver family, 8-2970
Comber, fish. *Picture* (in color), 16-5783
Combination lock, explanation of, 6-2022
 Pictures, 6-2024-25
Comedy, definition of, 8-2685
Comenius, Johann Amos, educator, 17-6342
 life and influence, 14-5252
 Picture, portrait, 14-5247
Comet, Bell's steamboat, 17-6400
 Picture, 17-6399
Comets
 * account of, 10-3666-71

GENERAL INDEX

Comets (continued)

diagram of path, 10-3665
possible origin and composition, 10-3668, 3670
what tail is made of, 10-3665-66
Pictures, 20-3667-69

Comfrey, plant, description, 16-5880

Picture, common comfrey (in color), 16-5883

Comines, Philippe de, French writer, 18-6563

Commerce

* Trade between nations, 15-5589-91
development through trade, 10-3673-74
in South Sea Islands, 9-3304
increases value of labor through greater
power to exchange, 18-6487
influence on exploration, 8-2982
international, beneficial to both parties,
18-6487

Commerce and Labor, Department of, *see*
United States—Commerce and Labor, De-
partment of

Committee of Public Safety. An all-powerful
committee set up on April 6, 1793, by the Con-
vention in the French Revolution.

Committee of the Whole. In a legislative body
when all the members sit in a deliberative
rather than a legislative character (that is, they
debate and consult upon a question before them)
they are said to form a Committee of the Whole.

Committees of Correspondence. Committees of
American colonists that came into existence
before the American Revolution. These com-
mittees prepared and circulated among the col-
onists statements of grievances against the
British Government. Then they discussed and
planned measures of redress.

Commodity, term in economics, 14-5243

Commodus, Lucius Aelius Aurelius, Roman em-
peror, 5-1865

Common carrier. One who for hire, and invit-
ing the patronage of the public, undertakes to
convey persons or things from one place to an-
other. Railways, steamship lines, express com-
panies are examples of common carriers.

Commons, House of, Canada, *see* Canada—
government

Commons, House of, England, *see* House of
Commons

Commonwealth, in England, 6-1978

Commune, in France, 10-3573, 3576

Como, Lake of. Beautiful lake in northern
Italy, fed by the Adda. Lying due north of
Milan, it is 55 square miles in extent, being
about 43 miles long, and from one to two and
a half miles broad.

Picture, 12-4409

Companion-hood of a ship, 14-5003

Companion-ladder of a ship, 14-5003

Companion-way of a ship, 14-5003

Company of One Hundred Associates (also
called Company of New France), 2-680, 682

Compass

description, 12-4421

gyro-compass, 12-4422

how to use a watch as, 16-5768

mariner's, 16-5797

how to read, 18-5984

use on shipboard, 12-4421-22

wireless, inventors of, 17-6248

Picture, gyro-compass, 12-4429

Compass, Points of, finding from stars,

11-3787-90

Compass in drawing, how to use knife, 16-5886

Composite Family, in botany, 13-4874

Compounds, Chemical, *see* Chemistry—com-
pounds

Comte, Auguste, French philosopher, 18-6716-17

Question about. What new way of thinking

was started by Auguste Comte? 7-2609

Comus, poem by Milton, account of, 4-1236

Comyn, Scottish noble, 12-4210

Conan, Laure, pen name of Félicité Angers,

15-5367

Concepción. Chief port of southern Chile.

Concert of Europe. Since the Congress of
Vienna (1814-15) the name given to an agree-
ment between the great powers to take com-
bined action on questions of common interest.

Concord, Mass.

Pictures

Alcott home, 14-5007

Emerson home, 13-4631

"Old Manse," Hawthorne's home, 13-4631

statue of minute man, 4-1174

Concord. Capital of the state of New Hamp-
shire, on the Merrimac River. Nearby are the
extensive granite quarries. Carriages, silver-
ware, harness, furniture, flour, cotton and
woolen goods, pianos, etc. are manufactured.
The Boston and Maine Railroad carshops are
here.

Concord, Battle of, 4-1163-64

Poem about. Concord Hymn, by R. W. Emer-
son, 11-4032

Pictures, 4-1163; 18-6834

Concrete

* How man makes stone, 7-2305-07

directions for use

dog-house, 17-6259-60

drinking-basin, 14-5117

steps, 12-4499

walk, 11-3854-55

invented by Romans, 15-5347-48

reinforced, 7-2307

Question about: Why is concrete used for build-
ing purposes? 17-6285

Pictures, showing manufacture and use,

7-2306-12; 17-6284-87

Condé, Prince de, saved by Duchess of Ferrara,

19-6881

Condiments, *see* Spices

Condors, birds, 10-3760

Pictures, 10-3755; (graveure), 10-3763-64

Condottieri. Bands of adventurers in Italy in
the 14th century and onward who hired them-
selves to anyone who would pay them.

Conduct of life

Poems about

See list, 20-7676

Conduction, heat transmission, explanation,

15-5427

Conductors, Orchestra

Question about: What does the orchestra con-
ductor do with his stick? 7-2487

Cone-shells, molluscs, description, 19-6892

Pictures

shells, 19-6886; (in color), 19-6894

Coney, Biblical name for hyrax, 6-2139

Coney Island

Picture, beach, 17-6217

Confederate States of America

flags, pictures in color, 19-7191

money of, 7-2438

organization, 7-2430

return of states to Union, 8-2669

ships that attacked Union commerce, 7-2438

song, Dixie, 17-6250

Confucius, Chinese philosopher

* life and teachings, 9-3090, 3092

influence in China, 2-424

wrote Book of History, 15-5460

Picture of statue, 9-3085

Conger eel, *see* Eels—conger eels

Conglomerate, rock, description, 17-6386

Congo Free State, Belgian, 18-6812, 6814

Congo River, account of, 18-6806, 6812, 6814

Stanley traced its course, 2-470

Congress, Library of, *see* Library of Congress

Congress Colors, first official American flag,

19-7182

Congress of U. S., *see* United States—Congress

Congressional Record. Official printed reports
of the proceedings of both houses (Representa-
tives and Senate) in the United States Congress.
It is not always an exact account, because mem-
bers are allowed to revise their speeches before
they are printed, and sometimes permission is
given to members to have printed in the Record
speeches which were never delivered in the
Congress. The Record under different names
has been published since 1799.

Conistone, Lake. One of the largest lakes of the
English Lake District, in Furness, Lancashire.
It is 5 miles long and half a mile broad.

Conjuring, *see* Tricks

Connard, Philip, English artist, 8-2860

Connaught, Duke of, governor-general of Can-
ada, and Sir Richard Owen, 2-593

Connaught. Western province of Ireland, com-
prising Galway, Leitrim, Roscommon, Sligo and
Mayo. Mountainous and boggy, with several
large lakes, it has only two towns, Galway and
Sligo, with more than 10,000 people. Area, 6,863
square miles.

Connaught Tunnel. A double-track tunnel, about
5 miles long, through Selkirk Mountains, Can-
ada, on Canadian Pacific Railway.

GENERAL INDEX

Connecticut. One of the original thirteen states of the United States; area, 4,965 square miles; capital, Hartford. Manufactures of many sorts are important, at Bridgeport and New Haven, the largest city, especially. Building stones are found. Abbreviation, Conn. Nickname, the "Nutmeg State." State flower, the mountain laurel. Motto, "Qui Transtulit, Sustinet" (He Who Transplanted Still Sustains). "Connecticut" comes from the Indian word meaning "River of Pines." First settlement, thought to have been at Windsor, about 1633.

described in Northeastern States, 10-3401-08;
11-3773-82; 12-4145-54
founded, 2-554-55
manufactures in, 11-3778, 3782
ratified Constitution, 20-7559
signers of Constitution from Connecticut, 20-7571
signers of Declaration of Independence, 20-7556

Pictures

capitol at Hartford, 13-6683
flag (in color), 19-7199
hills, 10-3397
Shaw Mansion, New London, 12-4154
Yale University, 12-4309; (gravure), 13-6687
Connecticut River. American river, rising in Connecticut Lake, New Hampshire; empties into Long Island Sound, 419 miles.

Connor, Ralph, pen name, *see* Gordon, Charles William

Conquerors of disease, * 15-5481-93
Conquerors of the sea, * 17-6397-6408

Conrad, Joseph. English novelist of Polish parentage; born in the Ukraine, 1857; died, 1924.

mastery of English, 11-3899

Conservation of energy, law of, 13-4667-68;
15-5570

Consonants

classification, 10-3561
explosive, 13-4593-94
less musical than vowels, 10-3560

Constable, John, English painter
life and work, 6-2230-32; 7-2328, 2330

Pictures, portrait, 7-2327

Cornfield, 6-2231

Hay Wain, 6-2231

Constance. Ancient German cathedral city on the Lake of Constance, trading in linen. Here John Huss was burned, 1416.

Constance, Lake of. Second largest lake of the Alpine region, lying between Switzerland, Germany and Austria, 205 square miles in extent, it is drained by the Rhine.

Constant Warwick, first frigate, 11-2948

Constantine XIII, Byzantine emperor, at fall of Constantinople, 1453, 13-4798, 4800

Constantine I, king of Greece, 14-4918

Constantine the Great, emperor of Rome, 4-1200 and his mother, St. Helena, 5-1691-92

gave freedom to Christians, 2-378

reign, and adoption of Christianity, 5-1858, 1866

vision of cross in the sky, 5-1692

Pictures, leading his troops in battle, 5-1858

Constantinople

capture by Turks, 1453, 13-4798

churches and mosques, 16-577-78

* history, under Byzantine empire and Turks, 13-4798-4800

improvements under Constantine and successors, 16-5716

made capital by Constantine, 2-576

St. Sophia, *see* St. Sophia, Constantinople

sieges and captures, 13-4801

Pictures, 13-4801, 4802, 4803, 4805

mosque of Sial Zade captured, 9-3995

Constantius I, Chlorus, and St. Helena, 5-1691

Constanza, Rumania, 14-4922

Constellation, American ship, 17-6318

Constellations, diagrams of, various hours, 11-3773-79

See also Stars

Constitution (Old Ironsides), ship

built with copper, 17-6319

in War of 1812, 5-1134

captured over ship Java, 17-6319

Poem about Old Ironsides, by G. W. Drake, 4-1380

Pictures, fight with Guerriere, 17-6322

Pictures with note, 11-3915

Constitution of U.S., *see* U.S.—Constitution

Consular service. That branch of the government of a sovereign state which comprises agents and assistants commissioned to reside in foreign towns or cities to protect the interests of its own citizens as well as his government's commercial interests. As a rule a member of the consular service has no diplomatic powers.

Consulate, in France, 6-2203

Consumption (economics), 17-6359-62

Contempt of court. The law term given to open disrespect or disobedience to the rules or orders of a court; also to an unreasonable interruption of the proceedings of a court.

Contentment

Poems about

My Mind to Me a Kingdom Is, by Sir Edward Dyer, 9-3339

O Sweet Content, by Thomas Dekker, 9-3339
Question about: Why are we never satisfied? 2-686

Continental Congress, 1774, 4-1162

Continental Congress, Second, 1775, 4-1164

Continental Shelf, the sea-covered plain that borders the shore of a continent or an island. It is like a platform from which the dry land rises in relief. The width of the shelf varies considerably. The abrupt drop of the edge to the depth of ocean is called the continental slope.

Continents

Question about: What is the lost continent? 8-2717-18

Contraband. Anything which the laws of a country forbid to be either imported or exported

Contract. An agreement or bargain between two or more people or groups of people in which each signer binds himself to carry out certain provisions mentioned in the agreement.

Conundrums, see Riddles

Conure, bird

Picture (in color), 10-3624

Convection, heat transmission, explanation, 15-5426

Convictional rain, 8-2923

Conventions in art, necessity of, 8-2710

Convolvulus

European sea convolvulus, 14-5158, 5163

field, *see* Bindweed

Picture (in color), 14-4982

Picture and note, 1-331

Cook, Eliza, see Poetry Index for poems and notes

Cook, Frederick Albert, explorer, 14-5091

Cook, Capt. James. English navigator; born Marton, Yorkshire, 1728; killed in Hawaii, 1779 at Bering Strait, 8-2984

discovered Great Barrier Reef, 7-2578

discoveries in South Seas, 3-861; 7-2571-72

explorations in Australia, 7-2464

first crossed Antarctic Circle, 14-5089

helped chart St. Lawrence River, 7-2464

islands named by, 9-3360

Pictures, portrait (in group), 3-858

Cook, Mount, New Zealand, 7-2574, 2576

Cook Islands, government and population, 7-2576, 2578; 9-3188

Cook Strait, New Zealand, 7-2574

Cooke, Sir William Fothergill, and invention of telegraph, 17-6237

Cookie-cutter, from tin can, 2-748

Cooking

how to measure for, 1-234

jelly, how to make, 1-130

recipes

cake, 9-3276; 11-4015

candy, *see* Candy—recipes

how to make butter and cottage cheese, 3-896

meat, without a freezer, 11-4088

potatoes, 3-904

refreshments for tea-party, 9-3276

For list of main articles, *see* 20-7637-38

Questions about

Why do we cook the food we eat? 4-1450

Why does boiling make an egg hard? 13-4827

Coolidge, Calvin, president of U. S.

administration, 8-2674; 11-3950

Picture and note, 11-3951

Pictures

portrait (gravure), 11-3945

radio line-cut, 17-6366

GENERAL INDEX

- Coolidge, William David**, discoveries in X-rays, 16-5943-44
- Coolidge tube**, in X-ray machine, 16-5943-44
Picture, 16-5937
- Coon**, see Raccoon
- Cooper, Anthony Ashley**, see Shaftesbury, 1st earl of
- Cooper, George**, see Poetry Index for poems and notes
- Cooper, James Fenimore**, American author
* life and writings, 13-4626, 4628
* Last of the Mohicans, quotations and summary, 1-267-78
Picture, portrait, 13-4628
home, Otsego Hall, 13-4625
- Cooper, Peter** (1791-1883). An American inventor, manufacturer and philanthropist, born in New York City. He founded Cooper Union between 1857 and 1859. Greenback candidate for president, 1876.
built first engine in America, 5-1615
founded Cooper Union, 17-6218
- Cooper Union**, New York city, 17-6218
- Cooper Hewitt lights**, description, 18-6597-98
- Co-operation**, extent and value, economic 18-6485-87
- Co-operative stores** in Labrador, 7-2500
- Cooperstown, N. Y.**
Picture, Otsego Hall, 13-4625
- Coosa River**. American river, rising at the junction of the Oostenaula and Etowah rivers, Georgia. Empties into Alabama River. 350 miles.
- Coots**, birds, 11-4130
Picture, 11-4129
Picture (in color), 8-2897
- Coots**, name for one kind of marsh-hens, 14-5020
- Cope, John**, attack on Jacobites, 15-5641
- Copenhagen**, capital of Denmark, 15-5296
Pictures, 15-5295
- Copenhagen, Battle of**, 6-2203
- Copernican system** of astronomy, and Galileo, 1-280, 282
- Copernicus, Nicholas**, astronomer, life and teaching, 1-202, 205
Picture, portrait, 1-201
with his book, 1-205
- Cophetua, King**
Poems about
Beggar Maid, by Lord Tennyson, 2-736
King Cophetua and the Beggar Maid, 2-487
Picture, King Cophetua and the Beggar Maid, 2-734
- Copley, John Singleton**, American painter, 9-3326
Pictures
Portrait of Mrs. Sylvanus Bourne, 3-969
Portrait of Mr. and Mrs. Ralph Izard, 9-3324
Portrait of Lady Wentworth, 9-3324
- Copper (Cu)**. One of the important commercial minerals. It is red in color, soft, and in its natural state occurs in irregular masses. Often it is united with sulphur, iron, etc., and these combinations have a characteristic bluish, greenish or goldish color. Cuprite, malachite, azurite, chalcocite, chalcopyrite and bornite are the best-known copper ores. The United States is the world's greatest copper-producer. Canada and South America have also great deposits.
boiling and melting points of, 8-3014
feathers of birds, turacos, contain copper, 10-3502
in Canada, on Arctic coast, 7-2562
in Peru, with picture, 19-6983
in United States
Alaska, 16-5790
Anaconda, Montana, 9-3215
Michigan, 17-6028
production in U. S., 9-3208
uses of, 9-3208
Pictures, works at Anaconda, Montana, 9-3215
- Copperhead**, snake, 15-5416
Picture, 15-5414
- Coppermine River**. A river of northern Canada, flowing into Coronation Gulf. Discovered by Samuel Hearne in 1771. Visited by Sir John Franklin in 1821. 525 miles.
- Copra**, definition of, 9-3296
- Ceracles**, primitive boats, 11-3914
- Coral**, marine polyp
* account of, 19-7068-69
in Jurassic period, 5-1545
- Coral (continued)**
islands made of, 9-3296; 19-7068-69
Pictures, 19-7067
in Silurian period, 3-1033
- Coral root**, flower
Picture (in color), 13-4879
- Coral snakes**, 15-5414
- Corbet, Richard**, see Poetry Index for poem and note
- Corcoran, W. W.**, brought back Payne's body, 18-6511
- Corday, Charlotte**, killed Marat, 6-2134; 10-3576
Pictures, portrait, 6-2127
on her way to death, 6-2129
- Cordelière**, ship, 11-3916
- Cordilleran Highland**, 1-154
- Cordilleras**, definition, 1-114
of Canada, 1-114
- Cordova**. Ancient and picturesque Spanish city in Andalusia, being inclosed by massive turreted walls. Famous in Moorish times, it has a cathedral built as a mosque in the 8th century. the most magnificent of its kind in Europe.
mosque, 15-5468
Pictures (gravure)
columns and arches of mosque, 15-5474, 5477
- Coreopsis**. *Picture* (gravure), 19-7178
- Corfu**, Greek city, 14-4918
Pictures, 14-4920-21, 4927
- Coriander seeds**, 8-2996
- Corinth Canal**, note and pictures, 13-4788
on map, 14-4919
- Corinthian Order**, in architecture, 15-5342-43, 5345
- Coriolanus**, Roman, 2-585-86; 4-1193
- Cork**. Second city and port of the Irish Free State, and capital of County Cork. Standing 11 miles above the entrance of the Lee to Cork Harbor, it has a great export of agricultural and dairy produce, and is the commercial and manufacturing centre of Munster. There are Anglican and Catholic cathedrals.
- Cork**. Southernmost county of Ireland, in Munster. Agriculture and some mining are carried on; dairying is important; and Cork, the capital, Queenstown, Youghal and Kinsale are prominent as ports. Area, 2,890 square miles.
- Cork**, how obtained, 12-4379
toys made from, 2-514-15
- Corkwing**, fish. *Picture* (in color), 16-5781
- Cormon, Ferdinand**, artist
Picture, Victors after Salamis, 3-1077
- Cormorants**, birds, 11-3882
Pictures, 11-3883; (in color), 8-2898; 9-3130
- Corn**, maize, account of, 5-1856
as feed for animals, 7-2412; 15-5282
as food, 7-2424
bread, made from, 1-372
breeding new varieties, 4-1474
English use word for wheat, 7-2414
most valuable crop in U. S., 8-2678
production in north central states, 15-5280, 5282
Pictures, 5-1850; (in color), 8-2998
Picture, with note, 7-2414
- Corn** (on foot)
Question about. What is a corn? 1-188
- Corn-borer**, European, 18-6734
- Corn-cockle**, weed, 15-5394-95
Pictures, 15-5395; (in color) 15-5398
- Corn Laws**, England, influence of songs in abolishing, 3-1135
- Corn-root aphid**, notes and pictures, 17-6065
- Corn salad**, flower
Pictures (in color), 15-5397-98
- Corncrake**, bird, 11-4130
- Cornea**, part of eye, 10-3684
- Corneille, Pierre**. French poet and writer of plays; first great dramatist of France; born, Rouen, 1606; died, 1684.
Picture, portrait, 18-6559
- Cornel**, flower
Picture (in color), 14-4987
- Cornelia**, mother of the Gracchi, 4-1364-65
story, calling sons her jewels, 11-3811
Picture, 11-3811
- Cornell, Ezra** (1807-74). American engineer and contractor, born, Westchester Landing, N. Y. Founder of Cornell University, Ithaca, New York.
submarine cable of, 12-4293
- Cornell University**, note on, 12-4311
Picture, library, 12-4311

GENERAL INDEX

- Cornflower**, 14-4980
movement to brush pollen on bee, 2-746
national flower of Germany, origin, 17-6181
note on, 14-4978
Pictures, 14-4978; (gravure), 19-7176; (in color), 15-5398
- Cornstarch**, little food value, 7-2424
- Cornwall, Barry** (Bryan Waller Procter), *see* Poetry Index for poems and notes
- Cornwall, England**
Phenicians traded with, 11-3912
Pictures
coast at Kynance (gravure), 7-2303
harbor of Povey (gravure), 7-2301
village of Cadgwith (gravure), 7-2302
- Cornwallis, Charles**, second earl and first marquis (1738-1805). British soldier and statesman. Though opposed to war with the American colonies, he served faithfully from 1776 until he surrendered at Yorktown in 1781. He was Governor-General of India 1786-93; viceroy of Ireland 1798-1801, and was again appointed to govern India in 1805.
defeats Gates at Camden, 4-1172
surrenders at Yorktown, 4-1172
Picture, portrait, 4-1161
- Corolla**, part of flower, 2-506
- Corona**, light around sun, 9-3178
- Coronado, Francisco Vasquez de**. The Spanish explorer of the southwestern part of the United States of America. In 1539 he marched northward from Mexico to Colorado and Kansas and discovered the Grand Canyon of the Colorado River. He is supposed to have been born about 1500 and to have died about 1545.
explorations, 1-244, 246
- Coronation chair**, Westminster Abbey, 5-1680
- Coronation stone**, Scotland, taken to England by Edward I, 5-1680
- Coroner**. A county or municipal officer who holds inquests on the bodies of persons who have died violent deaths.
- Coronium**, element of corona, 9-3178
- Corot, Jean Baptiste Camille**, French painter, 7-2370-71
Story of a day (from letter), 16-6034-35
Pictures (gravure)
Bent Tree, 7-2375
Evening, 7-2376
Landscape, 7-2376
- Corporations**, limited liability, 15-5360
- Corpse plant**, name for Indian pipe, 18-6572
- Corpuscles**, blood, *see* Blood—cells
- Correggio, Antonio Allegri da**, Italian painter, 3-1107-08
Pictures
Madonna and St. Jerome (gravure), 3-1111
Madonna of the Basket, 3-1105
- Corsairs**, *see* Pirates
- Corsica**. Island department of France; area, 3,367 square miles; capital, Ajaccio. Rugged and picturesque, it rises to nearly 900 feet in Monte Cinto and Monte Rotondo, the people being engaged chiefly in stock-raising and fishing, though large quantities of olives and chestnuts are grown. It belonged to Genoa up to 1768, when it was sold to France; but it was not till the defeat of the patriot Pasquale Paoli in 1796 that the French finally occupied it. Bastia, Bonifacio, Calvi and Corte are among the principal towns.
birthplace of Napoleon, 11-3820
- Cort, Henry**, invented puddling furnace, 6-1938
- Cortereal, Gaspar**, Portuguese explorer, 2-677
voyages to Greenland and Labrador, 1-242
- Cortes, Hernando**, Spanish explorer
conquest of Mexico, 1-244; 19-7132-33
Pictures, portrait, 1-245
in Mexico, 1-254
- Corunna, Battle of**, 6-2206
- Corvus**, old Roman gangway, 11-3914
- Cory, William**, *see* Poetry Index for poem and note
- Cosimo, Piero di**, Italian artist, 2-699
- Cosmic dust**, explanation, 15-5425
- Cossacks**. A Russian military tribe living originally on the steppes about the lower Don and the Dnieper rivers. Later, bands spread to Siberia, the Caucasus and eastern Russia. Before the Russian Revolution in 1917 the Russian army had several noted cavalry regiments recruited from Cossack tribes and known by that name.
- Costa Rica**. Republic of Central America; area, 23,000 square miles; capital, San José. Coffee, sugar, cacao, hides and hardwoods are exported. Limon, on the Atlantic, a banana port, connects by rail with Puntarenas on the Pacific.
description, 19-7142
Picture, coffee gathering, 6-2179
- Coster, Lourens Janszoon**, and invention of movable types, 9-3382
- Costumes**
American children, colonial period, 3-968
Armenian, 10-3629
Crete, ancient, 2-449
Dutch, 10-3630
Eskimo, 10-3629-30
French, 10-3510
German, 10-3510
Hindu, 11-4081
Hungarian, 10-3628-29
Indian, directions for making, 9-3251-52
bead belt for, 9-3114-15
Italian, 10-3627-28
Japanese, 2-572; 11-4081
Russian, 10-3630-31
soldier's, directions for making, 15-5339
Spanish, 10-3628
Swedish, 10-3627
Pictures
American, colonial period, 3-969, 971
dresses worn by wives of U. S. Presidents, 2-393
Austro-Hungarian, 17-6345
Belgian, 15-5494
Dutch, 15-5559
foreign dolls in costume (in color), facing 10-3510
Greek, 14-4930
peoples of central Asia, 18-6589
Persian, 3-922-23
Portuguese, 14-5185
Rumanian, 14-4924
Shakespearean characters, 3-835, 837, 839-41, 982-83, 987-88
See also names of countries under subhead "Pictures"
- Cotes, Mrs. Everard (Sara Jeannette Duncan)**, Canadian novelist, 15-5370
- Cotingas**, birds of South America, 9-3286
- Cotman, John**, English painter, 6-2230
- Cotopaxi**, volcano, height of, 7-2313
- Cottage cheese**, how to make, 3-896
- Cottage industries**, industrial system, 4-1306
- Cotterill, H. B.**, quotation from translation of *Odyssey*, 11-3912
- Cottle, Joseph**, Bristol bookseller
published poems of Coleridge and Lamb, 7-2354
- Cotton**
boll-weevil, *see* Cotton boll-weevil
cloth, how to test, 5-1774-75
cotton-gin increased use of, 6-1912
countries producing, 14-5167
cultivation, 5-1626
proportion to other crops, Southern states, 13-4524
Egyptian cotton, 14-5168
* manufacture, 14-5167-68
first cotton-mill, 9-3214
* mill processes, with pictures, 14-5170-76
United States, 9-3214; 14-5168
pests, 18-6722
Pima cotton, 14-5168
* plant, its history, and use for clothing, 8-2782-84; 14-5167
U. S. production, 8-2678
sea-island cotton, 14-5168
in U. S., 8-2678
seeds, *see* Cottonseed
Pictures
* preparation and manufacture, 14-5169-76
cotton-field near mill, 13-4525
cotton-picking in the Sudan, 8-2783
cotton-picking in U. S., 8-2782; 13-4517
cotton plant (in color), 8-2997
flower and boll, 14-5169
mills, 14-5164
- Cotton boll-weevil**, insect
damage to cotton crop, 5-1626; 8-2784
destroyed by cotton-leaf worm, 18-6722-23
destroyed by egrets, 11-4007
life-story, with pictures, 18-6729
- Cotton-gin**, effect on slavery in U. S., 6-1912
invention and value, 6-1912; 14-5167; 19-7205

GENERAL INDEX

- Cotton-grass**, note on, 16-5733
Picture, 16-5733
- Cotton-leaf worm**, destroys boll-weevil, 18-6722-23
- Cotton-mouth**, *see* Moccasins
- Cottonseed**
 products made from, 8-2783; 14-4890, 5168
 use of, 8-2678
- Cottus**, fish
Picture (in color), 16-5783
- Coucal**, variety of cuckoo, 10-3501
Picture, 10-3499
- Couch-grass**, relative of wheat, 5-1755
Pictures, 10-3649; (in color), 10-3524
- Cougar**, *see* Puma
- Count of Monte Cristo**, by Dumas, summary, * 18-6573-80
- Count Robert of Paris**, by Scott, note on, 11-4069
- Counterfeit**. An imitation of an original object made with an intention to defraud by claiming the copy is the original. Coins and paper money are the most frequent objects of counterfeiting.
- Counterpoint**, in music, explanation, 19-6902
- Counting**. *Question about*.
 Why do we count in tens? 12-4397
- Country**
Poems about
 Boy's Song, by James Hogg, 2-607
 Child's Wish in June, 4-1383
 Country Faith, by Norman Gale, 6-2036
 Laughing Brook, by Elizabeth Scantlebury, 6-2153
 My Will, by A. C. Benson, 10-3740
 Shepherd's Cot, by William Shenstone, 3-1007
 Under the Greenwood Tree, by William Shakespeare, 6-2152
 Useful Plough, 4-1384
 Wish, by Samuel Rogers, 3-846
Questions about
 Can country people see better than town people? 12-4398
 Is the country more healthful than the town? 10-3579
- Country dances**, English, *see* Morris dances
- County Hall**, London. *Picture*, 12-4359
- Couplet**, in poetry, definition, 1-216, 223
- Courage**, stories of, *see* Stories. Golden deeds
- Courbet**, Gustave, French painter, 7-2475-76
Pictures, landscape, 7-2477
 Stag Fight, 7-2477
- Coureurs de bois**, French Canadian trappers, 12-4337-39
- Courlan**, bird. *Picture*, 11-4009
- Coursoers**, birds, 11-4010
- Court-martial**. A court composed of military or naval officers called together to try offenses against military or naval law committed by officers or men serving in either branch of the service.
- Courtrai**, Belgium
Pictures
 Broel Bridge, 15-5499
 Hôtel de Ville (gravure), 17-6171
- Courts**. In law, courts are official organizations or tribunals for the public administration of justice.
- Couse**, E. Irving, American painter, 10-3455
- Cousin**, Jean, French painter, 5-1874
- Coustou**, Guillaume, French sculptor, 13-4702
- Coustou**, Nicolas, French sculptor, 13-4702-03
- Covenant**, Scotch
 under Charles I and Charles II, 2-441
Pictures
 Religious service on lonely moor, 7-2625
 Wedding in Scotland during persecution of Covenanters, 2-441
- Coverdale**, Miles, finished Tyndale's Bible translation, 1-306
- Covering of our bodies**, * 4-1415-20
- Cow**, *see* Cattle; Milk
- Cow blackbirds**, *see* Cowbirds
- Cow-peas**, 7-2614
Pictures, 7-2623
- Cow poison**, *see* Larkspurs
- Cow-wheat**, flower
Pictures (in color)
 common yellow cow-wheat, 14-4988
 crested cow-wheat, 14-4992
 purple cow-wheat, 15-5399
- Cowbane**, description, 16-5880
- Cowbirds**, 8-2970; 14-5141
 lay eggs in other birds' nests, 10-3500
Pictures, 8-2969
- Cowboys**
 songs of, 18-6515
- Cownishes**, name for coffer fishes, 16-5900
Picture (in color) 16-5787
- Cowley**, Abraham, as essay writer, 8-2865
- Cowpens**, Battle of, 4-1171-72
- Cowper**, William, life and writings, 6-2030
 hymns of, 12-4438
See also Poetry Index for poems and notes
Pictures, portraits, 6-2027, 2029; 12-4439
 portrait, with parents, 15-5619
- Cowries**, use as money, 19-6892
Pictures, shells, 19-6886; (in color) 19-6896
- Cows**, *see* Cattle; Milk
- Cowslips**
 American, *see* Marsh marigold
 English flower, description, 17-6128
Picture and note, 17-6122; (in color) 15-5611
- Cox**, Kenyon, American painter, 10-3453
- Coyotes**, animals, 2-599
Picture, 2-601
- Coypu**, animal. *Picture*, 3-1130
- Coysevox**, Antoine, French sculptor, 13-4702-03
- Cozens**, J. R., artist
Picture, Santa Giustina, Padua, 6-2233
- Crab-grass**, fodder-grass, 7-2410
- Crabapple**, account of, 11-4019
 ancestor of cultivated apples, 4-1387
Pictures
 fruit (in color), 11-4021
 showing development, 4-1387
- Crabapple tree**, description, 12-4383, 4388
Picture, tree, flower and leaf, 12-4388
- Crabbe**, George. English poet of rural life; born, Aldeburgh, Suffolk, 1754; died, Trowbridge, Wiltshire, 1832.
 character of writings, 12-4227
 visit to Sir Walter Scott, 7-2632
Picture, portrait, 12-4227
- Crabs**
 * account of, 16-5950-54
 giant crab of Japan, 16-5956
 fable about, by Æsop, 4-1186
 varieties, 16-5950, 5953
Pictures, 16-5949-55
- Cracow**, Poland
 description, 13-4690, 4692
 legend of founding, 13-4679
 pageant of Konik, 13-4680
 trumpeter on Our Lady's Church, 13-4680
Pictures, 13-4689
 castle, 13-4679
- Cracow**, University of, 13-4680, 4682
- Craddock**, Charles Egbert (pen name of Mary N. Murfree), American author, 13-4819
- Cradle**, for cutting grain, 19-7210
- Cradle songs**, *see* Lullabies
- Craft Guild**. Association of workmen in 14th- and 15th-century England who lived and worked at the same craft in the same quarter of the town.
- Craik**, Mrs. Dinah Maria Mulock, *see* Mulock, D. M.
- Crake**, bird
Picture, spotted crake (in color), 9-3284
- Cram**, Goodhue and Ferguson, American architectural firm, 18-6684
- Cramp**, causes of, 10-3475
Question about: What causes cramp? 12-4278
- Cranach**, Lucas, the Elder, German painter, 4-1344
Picture, Katharine von Borg, 4-1346
- Cranberries**, 6-2068; 16-5734
 jelly, how to make, 1-130
Picture, fruit (in color), 11-4022
- Crane**. A hoisting machine for moving heavy objects either vertically or horizontally. The parts of a simple crane are an upright post, a swinging lower arm, hoisting tackle and motive power (man or mechanical).
- Crane-flies**, account of, 17-6418-19
Picture (in color), facing 18-6721
- Cranes**, birds, 11-4010
Pictures, 11-4009
 South African crowned crane (in color), 12-4372
- Cranesbill**, flower, 18-6570
Pictures (in color), 14-4981, 4987
 meadow cranesbill, 16-5882
 mountain cranesbill, 14-4994
- Cranmer**, Thomas. Archbishop of Canterbury; born, Aslockton, Nottinghamshire, England, 1489; burned at Oxford, 1556.

GENERAL INDEX

- Cranmer, Thomas** (*continued*)
 arranged Book of Common Prayer, 5-1817
Pictures, portrait (graveure), 5-1821
- Crater Lake National Park**, description, 7-2290
Pictures, 7-2281; 18-6436
- Craters** on moon
 description and explanation, 10-3542-43
Pictures, 10-3538-39, 3541
- Crating**, directions for, 7-2514-15
- Crawfish**, see Crayfish
- Crawford, Francis Marion**, novelist, 14-5008
Picture, portrait, 14-5008
- Crawford, Isabella Valancy**, Canadian poet, 14-5107
- Crawford, Mrs. Louisa Macartney**, author of Kathleen Mavourneen, 10-3611
 See also Poetry Index for poem and note
- Crawford, Thomas**, sculptor, 14-4934
- Crawford Notch**, New Hampshire. *Picture*, 7-2422
- Crayfish**, 16-5955-56
- Cream**, food value, 7-2324-25
 separated from milk, 1-382-83
Questions about
 Are microbes necessary to produce cream? 2-461
 What causes cream to form on milk? 4-1354
- Cream-separators**, see Separators
- Creation**, Assyrian account, on tablets, 2-657
- Creation, The**, oratorio by Haydn, 19-6917
- Cr  cy, Battle of**, 5-1682
- Credi, Lorenzo di**, Italian painter, 2-699
Pictures
 Madonna and Child, 2-690
 The Virgin (graveure), 2-696
- Credit**. In business, confidence of a seller in a purchaser who does not pay cash but promises to pay at a future date.
- Credit, Letter of**. An order from a bank in one place that enables the holder of the order to receive money in another place or places. The holder pays into the bank or puts up security guaranteeing the sum of money for which the letter of credit is made out.
- Credit Mobilier of America**. A joint-stock financial company chartered in Pennsylvania in 1863. It became the centre of a congressional scandal through its alleged corrupt operations in connection with the building of the Union Pacific Railroad, 1872-73.
- Creek Indians**
 Alabama uprising crushed, 1814, 5-1705
- Creepers**, birds, account of, 9-3136
 brown, account of, 13-4766
 California, or tawny, 14-5139
Pictures (in color)
 blue creeper, 10-3621
 tree creeper, 9-3281
- Creeping soft grass**, note and picture, 10-3657
- Cremazie, Octave**, French Canadian poet, 14-5110
- Cremona**. Ancient Italian city on the Po, with a fine cathedral and the highest belfry campanile in Italy. It was formerly famous for its violins, the most famous maker being Stradivarius. Amati and Guarneri also were Cremonese.
- Creon**, king of Thebes, and Antigone, 6-2008
- Creosote**, prevents decay of wood, 15-5620
- Cresilas**, Cretan sculptor, 12-4327-28
- Cress**, 7-2616
 directions for growing, 2-748
Pictures
 growing on a wet sponge, 7-2516
 large-flowered bitter cress (in color), 16-5884
 marsh yellow cress (in color), 16-5883
 penny cress (in color), 14-4994
- Cretaceous period**, see Geology—Cretaceous period
- Crete**. Important Greek island lying across the southern end of the Aegean Sea; area, 3,320 square miles; chief towns, Candia and Canea. Though mountainous, it contains fertile valleys where figs and olives are extensively grown; but it is famous chiefly for its splendid Minoan ruins at Knossos, the most remarkable of their kind. It became part of Greece in 1914.
 * early civilization, 2-447-49
 art, painting, 2-448-49
 costumes, ancient, 2-449
 influence on Greek art, 2-449-50
 of present day, 14-4917-18
Pictures, 14-4927
 ancient art, 2-448-49, 452-54
 vases and statuettes, ancient, 11-3989
- Cretinism**, disease, cured by thyroid extract, 9-3222
- Crewel stitch**, directions for, with pictures, 16-5891-92
- Cricket**, game, rules for, 14-5116
Poem about. Torch of Life, by Sir Henry Newbolt, 8-3005
- Crickets**, insects, 17-6068
Poem about. On the Grasshopper and the Cricket, by John Keats, 18-6799
Pictures (in color) facing 18-6120
- Crimea**. Peninsula on the north coast of the Black Sea. It was under Turkish rule from 1475 to 1792, when it was ceded to Russia. Sebastopol and Simferopol are the chief towns.
- Crimean War**, 7-2299; 10-3573; 16-5694, 5704-05
- Crimes**, in law, 13-4813
- Crinkle-root**, 17-6279-80
- Crispin, St.**, story of, 6-1997
- Crispinian**, brother of St. Crispin, 6-1997
- Cristobal**, Panama Canal Zone
Pictures, 10-3595
- Croaker Family**, fish, 16-5780
- Croatia**. District of Jugo-Slavia, formerly part of Hungary. It is mainly agricultural and pastoral; Zagreb, or Agram, the capital, being the only considerable town. The people are 65 per cent Roman Catholic Croats and 35 per cent Greek Orthodox Serbs.
- Crock of Gold in the Plain of York**, legend, 17-6324
- Crockett, Samuel Rutherford**, author, 11-3898
- Crocodiles**
 * account of, 14-5228-29
 fight with rhinoceros, 5-1830
 use of, as scavengers, 1-97
Pictures, 14-5226
- Crocus**, flower, 19-7172
 wild crocus, see Pasque flower
Poem about. The Crocus, by Mrs. H. E. King, 12-4472
- Croesus**. Last and most magnificent of Lydian kings; reigned 560-546 B.C., patron of Solon and Aesop.
 conquered by Cyrus the Great, 3-912
 story, talk with Cyrus, 8-2963
- Crofts, Ernest**, artist
Pictures
 Burial of Charles Stuart at Windsor, 6-1975
 Cromwell riding through York, 11-3844
 Evening of Waterloo (graveure), 6-2211
 Wellington on his march to Waterloo (graveure), 6-2211
- Croker, Thomas Crofton**, Irish writer, 9-3197
- Crome, John**, the elder, English artist, 6-2230
Picture, Poringland Oak, 6-2231
- Crommelin, Louis**, and linen in Ireland, 9-3317
- Crompton, Samuel**, inventor of spinning-mule, 19-7203-04
Picture, portrait, 19-7201
- Cromwell, Oliver**
 * life and character, 11-3846-48
 and his granddaughter, 1-126
 as leader in Civil War, and Protector of the Commonwealth, 6-1976-78
 Carlyle's estimate of, 9-3312; 11-3848
 repression of Irish uprising, 6-1978; 8-2934
Poem about. To the Lord General Cromwell, by John Milton, 12-4349
Pictures
 painting, by Ford Madox Brown, 11-3849
 painting, in group with Milton, 4-1241
 portrait, with mother, 15-5616
 portrait, miniature by Richter (graveure), 1-67
 riding through York, 11-3844
 scenes in his life, 6-1977, 1979
- Cromwell, Richard**, short rule of, 6-1978
- Cromwell, Thomas**. English statesman, Henry VIII's vicar-general for the suppression of the monasteries; born about 1485; beheaded, 1540.
 and Henry VIII, 5-1816-17
- Cronos**, god, 9-3226
- Crookes, Sir William**. English chemist and physicist; born London, 1832; died there, 1919; invented the radiometer.
 experiments with vacuum tubes, 12-4290; 16-5449
 warning on wheat supply, 5-1760
- Crops**. Rotation of, see Rotation of crops
- Crosby, Frances Jane**, hymn-writer, 12-4438
- Cross-ball**, game, directions for playing, 4-1400

GENERAL INDEX

- Cross-bearers**, botanical family, 13-4872-73
- Cross-breeding**, plants, 15-5384
- Crossbills**, birds, 8-2974; 14-5145
Picture (in color), 9-3282
- Crosses**
Pictures, ancient Irish, 8-2942
- Crossing the Line**. Crossing the Equator. Dating back in some form or other to pagan days. The Crossing of the Line was marked by an elaborate ceremonial in which Neptune played the principal part, and men making the passage for the first time were subject to very rough, if good-natured, handling.
- Crosstrees** of a ship, 14-5004
- Crouch, F. N.**, wrote music of Kathleen Ma-vourneen, 10-3611
- Crow blackbird**, name for bronze grackle, 13-4766
See also Grackles
- Crow-tits**, birds, one kind of babbler, 9-3285
- Crowberry**. *Picture* (in color), 11-4025
- Crows**
Question about: Why do we get headache in a crowded room? 8-2873
- Crowfoot, Water**, 16-5870-71
Picture, 16-5870
- Crowfoot Family**
 buttercups in, 15-5392
- Crown Point**, captured by Americans, 4-1164
- Crows**
 * Crow and his family, 8-2889-96
 description of, 8-2890; 13-4766
 fable about, by Aesop, 2-540
 fight with a heron, 11-4006
 of western North America, 14-5140
 rain crows, name for cuckoos, 10-3501
Question about
 What do we mean by "As the crow flies"? 7-2486
Pictures, 8-2895
 nest, 13-4765
 piping crow, 9-3135
Pictures (in color)
 crimson fruit crow, 12-4370
 European carrion crow, 9-3281
 European hooded crow, 9-3281
- Cruikshank, William**, Canadian painter, 10-3702
- Cruisers** of U. S. navy, 18-6816
- Crusades**
 * Men of the Crusades, 7-2583-89
 capture of Constantinople, 1204, 13-4801
 enthusiasm for, in France and England, 10-3432
 first and second, and Louis IX of France, 16-5818-19
 helped freedom of French cities, 10-3432
 St. Bernard preached on, 13-4862
 third, and Richard I of England, 5-1570
- * *Pictures*, 7-2582-89
- Crustaceans**, class of animals, 16-5949-50
 in Silurian period, 3-1031
- Crying**
Questions about
 Do cats and dogs ever cry? 17-6179
 Why do I laugh and cry? 1-73-74
 Why does a lump rise in my throat when I cry? 6-2123
- Crying proverbs**, game, 15-5598
- Cryptogams**, non-flowering plants, 10-3721-24
 reproduction of spore-bearing plants in Carboniferous period, 3-884
Pictures, five kinds, 10-3720
- Crystal**, use in radio sets, 17-6366
- Crystallization**. When a liquid or vapor solidifies by cooling or evaporation and its molecules unite into a regular form (crystal), the process is called crystallization.
- Crystals**, snow, 14-4906
- Cuba**, island of West Indies
 American control, 19-7102
 and Spanish-American War, 10-3590
 government, 10-3590, 3592
 history, 19-7101-02
 products, 19-7102
Picture, load of skins leaving tannery, 5-1558
- Cubism** in painting, 8-2714
- Cuckoo bread**, name for wood sorrel, 18-6570
- Cuckoo meat**, name for wood sorrel, 18-6570
- Cuckoo-pint**, flower, 17-6122-23
Pictures, 17-6122
 showing fertilization (in color), 17-6075
- Cuckoos**, birds
 * account of, 10-3497-3502
- Cuckoos** (continued)
 ground cuckoo, 14-5148
 have no nests, 8-2970
 of North America, 13-4830
 reared by pipits, 9-3136
Poem about: To the Cuckoo, by William Wordsworth, 6-2033
Pictures, 10-3497, 3499
Pictures (in color), 8-2899
 yellow-billed cuckoo, 13-4842
- Cuckoo's mate**, name for wryneck, 9-3368
- Cucumber-root**, Indian, 18-6572
- Cucumber tree**, description, 12-4386
- Cucumbers**, account of, 7-2614, 2616
Picture, in an English greenhouse, 7-2622
- Cudgel**, game, 10-3769
- Cudweed**
Pictures (in color)
 marsh cudweed, 16-5882
 seaside cudweed, 14-4982
 wood cudweed, 14-4984
- Culebra Cut**, Panama Canal, description, 1-361
Picture, 1-366
- Cullen, Maurice Galbraith**, Canadian painter, 10-3703
- Pictures*
 Cache River in the Laurentians (gravure), 10-3706
 Early morning, Lac Tremblant, 10-3710
- Cullinan**, largest diamond, 19-7233
- Culloden, Battle of**, 15-5642
- Cumberland, Duke of, William Augustus**
 and Jacobite rebellion, 15-5642
- Cumberland River**. American river, rising at the junction of Poor and Straight Forks rivers, Kentucky. Flows into Ohio River. 650 miles.
- Cumulus clouds**, 8-2922-23
Pictures, 8-2925-28
- Cunæus**, and Leyden jar, 4-1246
- Cunaxa, Battle of**, 3-1081; 14-5257
- Cuneiform writing**, 2-648, 650, 652, 654
 characteristics and extent of use, 18-6670
 in Tel-el-Amarna tablets, 2-654
 of Babylonia, 10-3546
- Cunningham**, Australian explorer, 3-863
- Cunningham, Allan**, *see* Poetry Index for poem and note
- Cuore**, book by E. de Amicis, story from, 18-6482-84
- Cupid (Eros)**, god of love, 9-3228
- Curaçao**, island, account of, 19-7104
- Curassows**, birds of South America, 12-4368
Picture, 12-4367
- Curchod, Susanna**, *see* Necker, Madame
- Curcuma**, plant, yields tumeric, 8-2996
- Curd**, formed from milk, 7-2324
- Curfew**, explanation of, 7-2363
Poem about. Curfew Bell, by R. H. Thorpe, 7-2363
- Curiosity**, mental stimulus, 12-4442
- Curlews**, birds, 11-4012
 stone curlews, 11-4009-10
Picture, 11-4011; (in color) 9-3130
- Curling**, game, account of, 10-3698; 14-5114-15
Picture, with note, 10-3695
- Currants**
 developed from wild fruit, 6-2064
 red-flowered, 19-6934-35
 wild black, 11-4020
 wild red, 11-4020
 Zante, imported to U. S., 6-2062
Pictures, 6-2061, 2063
 red currant (in color), 11-4025
 wild black (in color), 11-4023
 red-flowered currant, flower, 19-6935
- Currents, Ocean**, 7-2542
 cause, 16-5960
- Curtains, Window**, how to make, 17-6387-88
- Curtis, Charles**, vice-president of U. S.
Picture, portrait (gravure), 11-3945
- Curtis, M. A.**, classification of mushrooms, 11-3906
- Curtiss, Glenn H.**, aviator
 built hydroplane, 1-172-74
Picture
 early biplane, 1-175
- Curzon, Alfred de**, artist
Picture, Psyche (gravure), 9-3229
- Cuscuses**, animals, 7-2504
Picture (gravure), 7-2508
- Cusi**, name of Inca Pachacuti, 19-6860
- Custer, George Armstrong** (1839-76). American soldier born in Ohio. He graduated from West

GENERAL INDEX

Custer, George Armstrong (continued)

Point in 1861 and during Civil War rose from lieutenant to major-general of volunteers; returned to regular army as lieutenant-colonel in 1866 and was constantly engaged in fighting Indians; attacked much larger force of Sioux Indians on the Little Big Horn in Montana and was killed with his whole force. He was one of the bravest soldiers America ever had.

Customs duty. A tax placed by the government of a country on goods brought in from a foreign country. In some countries this tax is placed also upon goods exported to other countries.

Cut-paper compositions, how to make, 13-4845-46

Cut-water, bird, name for skimmer, 11-4122

Cuthbert, Saint, note on, with picture, 8-2847

Cutlery, manufacture, 4-1305-13

Pictures, of manufacture, 4-1305, 1307, 1309-13

Cutter, sailing vessel, rig of, 11-4086-87

Cutting-board, directions for making, 6-2259-60

Cuttlefish, account of, 16-5898

as food for whales, 6-2218

like imaginary creature, the kraken, 1-358

Picture, 16-5895

Cutty Sark, clipper ship, 11-3920

Cuvier, Georges, French scientist

identified Mosasaurus, 5-1660

life and work, 2-590-91

Pictures, portrait, 2-589; (in group), 2-588

Cuyper, Albert, Dutch painter, 5-1592

Picture, River Scene with Cattle, 5-1591

Cuzco. Ancient city of Peru, having been founded in the 11th century by Manco Capac, the first Inca. It was captured by Pizarro in 1533. It has one of the finest cathedrals in South America and abounds in Inca remains.

See also 19-6860

Pictures, 19-6857, 6865

Cyaxeres, king of Media, 3-912

Cycads, plants, plentiful in Triassic period, 4-1402

Cyclone, explanation of, 18-6692

Cyclopedias, *see* Encyclopedias

Cyclops, in mythology, 9-3236

Cylinders, of automobiles, 19-7029

Cypress trees, description, 12-4250

Pictures, 12-4250; 19-7141

Cypripedium, *see* Lady's slipper

Cyprus, island, 9-3182

Cyrenaica. Italian North African colony containing remains of ancient Cyrene. Benghazi is its chief port.

Cyril, Greek monk, made alphabet for Slavs, 10-3548

Cyrus the Great, king of Persia

and Jews, 3-912; 19-7157

extended empire, 3-912

Picture, restoring sacred vessels to Jews, 3-917

Cyrus the Younger, king of Persia

defeated by Darius II, 3-916

Cytherea, orchid, description, 19-6928

Czecho-Slovakia

formation and territory, 18-6459

* history and description, 17-6342-44

map, 17-6197

population, 5-1606

portion added from Hungary, 17-6340

rare stamps, 16-5887

Pictures, 17-6343

Czernowitz, Rumania, *see* Cernauti



Dabchick, bird, variety of grebe, 11-4130

Picture (in color), 9-3283

Dabs, fishes, 16-5779

Picture, 16-5779

Dachshunds, hunting dogs, 2-718

Picture (graveure), 2-716

Dacia, Roman province, 14-4918

Daddy-long-legs, English name for crane-fly, 17-6418

Dædalus, builder of Labyrinth, Crete, 2-449

story of his flying, 12-4197

Question about. What is the story of Dædalus? 9-3354

Dæmon, patron saint of every man, 9-3234

Daffodils, flowers

description, 17-6124, 6127

paper, how to make, 12-4501

Poems about

The Daffodils, by William Wordsworth, 1-102

Fair Daffodils, by Robert Herrick, 7-2527

Pictures, 17-6127; (in color) 14-4992

Daffydownilly, *see* Daffodils

Da Gama, Vasco, *see* Gama

Dagnan-Bouveret, Pascale Adolphe Jean, French painter, 7-2480

Picture, Blessed Bread, 7-2477

Daguerre, Louis Jacques, inventor, 18-6593

Dagry, John Adam, shoemaker, 18-6442

Dahlias

Pictures, varieties (graveure), 19-7174-78

Dahomey. French West African colony between the Gold Coast and Nigeria. Porto Novo is the capital, and corn, palm-oil, kola nuts and dried fish are the chief exports.

Dail Eireann, parliament of Sinn Fein, 8-2940

Daimler, Gottlieb, and first motorcycle, 19-7015

Dairies, sanitation of, 10-3508-09

Pictures and notes, 1-381

Daisies

flower made of tiny flowers, 13-4874

how the daisies go to sleep, 2-684

mountain varieties, 18-6661

oxeye daisy, 15-5390, 5396

Poems about

A Daisy at Christmas, by James Montgomery, 18-6468

Buttercups and Daisies, by Mary Howitt, 1-323

To a Mountain Daisy, by Robert Burns, 14-5128

Pictures

English daisy (in color), 14-4994

European daisy, 13-4870

Michaelmas daisies (graveure), 19-7179

mountain daisies, 18-6659, 6663

oxeye daisy, 15-5396

white daisy (in color), 15-5611

Daisy-asters, flowers, description, 18-6661-62

Picture and note, 18-6657

Dakin, Henry Drysdale, and hypochlorite of soda, 15-5493

Dalai Lama, leader of Buddhists in Tibet, 18-6591

D'Albret, Jeanne, *see* Navarre, Queen of

Dale, Sir Thomas, governor of Virginia, 2-544

Dalin, Olaf von, Swedish author, 19-7014

Dallas, George M., vice-president of U. S.

Picture, portrait (graveure), 11-3948

Dallas. Second city of Texas; centre of rich agricultural region; largest inland cotton market in U. S.; industrial and commercial city of state; important educational centre.

notes and pictures, 14-4892, 4898

Dallin, Cyrus E., American sculptor, 14-4939

Picture of sculpture, signing the Mayflower covenant, 7-2525

Dalmatia, 17-6346

Dalmatians, hunting dogs, 2-718

Picture (graveure), 2-716

Dalou, Jules, French sculptor, 13-4706

Picture, Peasant Woman, 13-4705

Dalton, Charles, and fox-raising, 13-4693

Dalton, John. English chemist, founder of the atomic theory; born, 1766; died, 1844.

Damascus. Ancient Syrian city with over 200 mosques. Once famous for damask and sword-blades, it makes silver and gold ornaments, cottons, woollens and silks.

seized by French, 18-6678

Picture, cloisters of the great mosque

(graveure), 16-5724

Damghan, Persia

Picture, Minar, 3-921

Damien, Father Joseph

life, and work for lepers, 7-2320-22

Picture, portrait by Edward Clifford, 7-2321

Damietta. Ancient Egyptian port near the mouth of the chief eastern branch of the Nile

Damocles

Question about. What was the sword of

Damocles? 15-5362

Damon and Pythias. story of, 9-3064

Dampier, Capt. William. English navigator; born, 1652; died, 1715.

Australian explorations, 3-860-61; 7-2463

GENERAL INDEX

Dampier, Capt. William (*continued*)
and Alexander Selkirk, 9-3296
Picture, with native, 3-860

Dams

Ashokan dam, 14-5055-56
Assouan dam, Egypt, 7-2546
Boise River, U. S., Arrowrock dam, 7-2546
Bow River, Canada, 7-2546
highest in the world, 7-2546
Kensico dam, 14-5056

Pictures

Arrowrock dam, 7-2552
Assouan dam, 7-2553
Bow River dam, Canada, 7-2551
dam across Ganges Canal, Dhanauri, 7-2543
Gatun dam, Panama Canal, 1-363
Kensico dam, N. Y., 14-5056
Keokuk, Iowa, 16-5656
King Lake dam, Washington, 15-5428
Muscle Shoals, 7-2312
Roosevelt dam, 7-2552
Tugalo dam, Georgia, 15-5428

Damsel fish

Pictures, in color, 16-5787-88

Dana, James Dwight, geologist, 19-7054-55

Picture, portrait, 19-7051

Dana, Richard Henry, Jr., author, 13-4628-29

note about, 9-3357

* Two years before the mast, quotations and summary, 9-3357-64

Dancing

folk dances, N. Y. city, 15-5624

Morris dances, directions for, 10-3504;

18-6785-86

Dancing-school, description, in South in colonial times, 3-972

Dandelions, account of, 15-5388-89

Picture, 15-5389

Danegelt. Tax levied first in 991 by Ethelred, the Saxon king, with the object of bribing the Danes to keep away from England.

Danelaw, part of England given to Danes, 4-1434

Danes, in Ireland, 8-2930, 2932

invasion of England, 4-1432

See also Northmen and Vikings

Picture, invasion of England, 4-1428

Daniel, prophet of Israel, in Babylon, 2-659-60

interpreted handwriting on wall, 2-660

Daniell's cell, electric, description, 16-5672

Danish literature, 19-7011-12

Danish West Indies, account of, 19-7104

bought by U. S., 10-3594

Dannecker, Johann Heinrich von, German

sculptor, 13-4858

D'Annunzio, Gabriele, Italian author, 17-6154

Dante Alighieri, Italian poet

* life and writings, 17-6150-52

Glott's portrait, how painted, 5-1736

influence on Italian unity, 12-4408

See also Poetry Index for poem and note

Picture, as he appears on his tomb, 17-6149

Danton, Georges Jacques. French revolution-ary, the greatest of the Jacobins; born, 1759;

guillotined at Paris, 1794.

in French Revolution, 6-2134

Picture, portrait, 18-6714

Danube. Most important river of Central Europe, and one of the finest in the world. It rises in Germany, in the Black Forest, and flows into the Black Sea through Austria, Czecho-Slovakia, Hungary, Jugo-Slavia, Bulgaria and Rumania. It is 1,725 miles long, with 300 tributaries and a drainage basin of 315,000 square miles. The most important cities it passes are: Ulm, Regensburg and Passau in Germany; Linz and Vienna in Austria; Pressburg in Czecho-Slovakia; Budapest in Hungary; Rustchuk in Bulgaria; and Braila, Galatz, Ismail and Sulina in Rumania. Its chief tributaries are the Iser, Inn, Raab, Waag, Drave, Save, Morava, Theiss, Sereth and Pruth. River steamers can go up it to Linz, but ocean steamers cannot pass the Iron Gates.

See also 17-6198

Danzig. Ancient Baltic Hanseatic port, formerly German, but now under the League of Nations. It stands in a small territory at the mouth of the Vistula.

now a free city, 18-6461

Daphne, Greece

Picture, church and monastery (gravure),

16-5723

Daphne, Trailing, flower

Picture (in color), 15-5609

Daphnis, in mythology, 9-3236

Darby, Abraham, discovered smelting with coal, 3-790

Dardanelles. Narrow strait connecting the Aegean Sea and the Sea of Marmora, and dividing Europe from Asia Minor. 47 miles long and from three to four miles broad, it was known to the ancients as the Hellespont.

Dare, Virginia, first English child born in

America, 3-965; 17-6336

Dar-es-Salaam, Tanganyika, 9-3054

Pictures, 9-3055, 3058

Darius I, the Great, king of Persia

as a ruler, 3-912, 914

attack on Greece, 3-914, 1076

Picture, palace at Persepolis, 3-915

Darius II, king of Persia, 3-916

Darius III, king of Persia, 3-916

Darius, Palace of, Persepolis

built on platform, 14-5209

burned by Alexander the Great, 11-3876

Picture, reconstruction, 3-915

Dark

Questions about

Is it darkest just before dawn? 12-4506

Why are some people dark and some fair?

19-7246

Why can't I see in the dark? 5-1807

Why do dark things look smaller than white things? 6-2122

See also Light

Darley, Felix Octavius Carr, artist

Picture, Sherman's army on march to sea,

7-2439

Darling, Grace, 3-1035

death of, 4-1331

Pictures, 3-1034

Darling River, Australia, discovered by Sturt,

3-863

Darnel, grass. *Picture* (in color), 10-3523

Darning, lesson in, 11-3857

Darnley, Lord, husband of Mary Queen of

Scots, 5-1818; 12-4214

Dart River, England

Picture (gravure), 7-2303

Darters, birds, 11-3882

Picture, 11-3883

Dartford warbler, bird, 9-3278

Dartmouth College, beginnings of, 12-4308

Darwin, Charles Robert, English scientist

* life and teachings, 2-593-95

as an author, 11-4002-03

Picture, portrait, 2-589

Darwin, Sir George, study of moon, 10-3536

Dasyure, animal

Picture (gravure), 7-2507

Data. Facts, statements, and so on, forming material for more general assertions. The word, from the Latin, means "things given."

Date line, meaning of, 16-5845

Dates

* account of, 6-2157-58

as food, 5-1624

date-palm, description and uses, 5-1624;

6-2157-58

recipes for, stuffed and with fondant, 2-752

use by Arabs, 18-6740

Pictures, growing and gathering of, 6-2157, 2160-61

Daturas, thorn-apples, 13-4782-83

Daubigny, Charles François, French painter, 7-2370

Pictures

Boats on the River Oise, 9-3071

Sunset (gravure), 7-2375

The Water Gate, 9-3071

Dauchez, French painter, 8-2856

Daudet, Alphonse. French novelist and satirist;

born, Nîmes, 1840; died, Paris, 1897.

Game of billiards (story), 4-1528-30

Last class (story), 19-7220-21

Daughters of the American Revolution. A patriotic society for American Women organized in Washington, D. C., 1890. Membership is limited to women who can furnish proof that one ancestor at least aided in establishing American independence

D'Aulnoy, Comtesse, see Aulnoy, Comtesse d'

Dauphin. The title of the eldest son of the king of France until the Revolution of 1830, when its use was abolished.

GENERAL INDEX

David, St. Patron saint of Wales, became primate of the Cambrian church and founded many churches and monasteries. His festival is March 1.

David, king of Israel
story of, 19-7001-03
and Tiglath Pileser I, 2-654
fight with Goliath, 13-4583
Pictures (gravure), from statues
by Donatello, 13-4614
by Michelangelo, 1-65, 68; 5-1742
by Verrocchio, 13-4614

David I, king of Scotland, 12-4208

Picture, 12-4206

David, Gérard. Flemish painter; born, Oudenarde, between 1450 and 1460; died, Bruges, 1523. character of painting, 4-1226-27

Picture, Adoration of the Child, 4-1224

David, Jacques Louis, French painter, 6-2077-80

Pictures

Coronation of Josephine by Napoleon, 6-2079

Madame Récamier, 6-2078

Mlle. Charlotte du Val D'Ognes, 6-2076

David, Laurent Olivier, French Canadian author, 15-5367

David, T. W. Edgeworth, antarctic explorer with Mawson in Antarctic, 14-5093

David Copperfield, by Charles Dickens

* quotations and summary, 8-2773-81

gives experiences from author's boyhood, 8-2782

Davidson, John, see Poetry Index for poem and note

Davies, Arthur B., American painter, 10-3455

Davies, W. H., English poet, 12-4234

see also Poetry Index for poem and note

Da Vinci, Leonardo, see Vinci

Davis, Jefferson (1808-89). American soldier and official, born in Kentucky. He graduated from West Point; later resigned from army, but volunteered for Mexican War; later U. S. Senator and Secretary of War; president of the Confederate States, 1861-65.

becomes president of Confederacy, 7-2442

birthday a holiday in South, 6-2090

imprisonment and release, after Civil War, 7-2442

Pictures

portrait, with note, 7-2431

house in Richmond, Va., 14-4893

Davis, John. English navigator; born, Sandridge, Devonshire, about 1550; killed by pirates, Malacca Strait, 1605.

discovered Davis Strait, 8-2982-83

Davis, Mary

Picture, portrait, by Sir Peter Lely, 6-2002

Davis, Richard Harding, author, 14-5007

Davis Strait named for John Davis, 8-2983

Davits on a ship, 14-5004

Davy, Sir Humphry. English chemist; born, Penzance, 1778; died, Geneva, 1829; invented the safety lamp for use in mines.

and Michael Faraday, 4-1251-52

discovered that nitrous oxid is anæsthetic, 8-2729

discoveries in electricity, 16-5671

electric arc, 3-993; 16-5937

Picture, Making his first experiments, 3-991

Dawes, Charles G., vice-president of U. S.

Picture, portrait (gravure), 11-3945

Dawes Act, 1887, about rights of Indians, 19-7226

Dawes plan, for German reparations, 11-3974

Dawson, Sir John William, Canadian geologist, 4-1176

life of, 19-7056

Picture, portrait, 19-7055

Dawson City, Yukon, how reached, 7-2558

Day, John, printer, 9-3388

Day-lily, 19-7172

Daye, Stephen, printed first book in America, 18-6509

Daylight-saving

question about: What is daylight-saving?

17-6789

Days

* Story of the days, 12-4199

caused by spinning of the earth, 1-236

definition of, 11-4172

duration, showing day and night on earth, 14-5217

length changed by earth's motion, 1-18

Days (continued)

length of, in summer and in winter, 8-2792

Poem (or rhyme) about. Thirty days hath

September, 2-739

Questions about

Has the day always been divided into twenty-

four equal hours? 11-4132

How can we tell the number of days in

another world's year? 11-3977

What is a day? 14-5217-18

Where does the day begin? 16-5845

Who arranged the days? 11-4131-32

Why are shadows longer at the end of the

day? 4-1230

Days we celebrate, * 6-2087-94

Dayton. City of Ohio, manufacturing machinery,

rolling stock and textiles.

De profundis. Latin for "out of the depths."

Dead, Feast of the, Japan, 2-574

Dead-letter Office, U. S.

receives carelessly addressed mail, 8-2656

Dead-nettles, 14-4980

Picture, 14-4978

Dead Sea. Lake in Palestine occupying the deepest part of the great rift containing the Jordan. Lying 1,292 feet below sea-level, it is about 340 square miles in extent, and its water is so salt that no animal life is able to exist in it; and human beings are unable to sink in it. It is fed from the north by the Jordan, but has no outlet.

location of, 2-584-85

Question about. Why cannot fish live in the

Dead Sea? 17-6180

Deadly nightshade, see Nightshade—deadly

Deaf and dumb

Alexander Graham Bell's work for, 17-6242,

6244

alphabet, how to use, 18-6523

Deafness

as cause of dumbness, 14-5222

cold or scarlet fever may cause, 9-3308

Deafish. *Picture* (in color), 16-5782

Death

story about

Men who went to kill death, by Chaucer,

13-4770

Poems about

Apologia, by Edmund Gosse, 8-3004

Baron's Last Banquet, by A. G. Greene,

13-4742

Crossing the Bar, by Lord Tennyson, 4-1382

Death of the Flowers, by W. C. Bryant,

18-6799

Prospect, by Robert Browning, 3-1006

The Sleep, by Mrs. E. B. Browning, 8-2765

Two Men, by C. N. Gregory, 11-4033

Question about. Should we be afraid to die?

15-5519

Death adder, snake, 15-5444

Death of Nelson, song, 10-3608

Death tick, beetle, superstition about, 18-6629-30

Picture, 18-6625

Death Valley, California, note and picture, 1-156

Debate. An argument or discussion between supporters of opposite opinions of a subject. In organized bodies certain rules have been adopted to govern such arguments.

De Baudricourt, Robert, and Joan of Arc, 16-5820

Deblois, Captain J. S., and whale hunt, 4-1189-90

De Bougainville, Louis Antoine, see Bougain-

ville, Louis Antoine de

Debt, imprisonment for, 7-2298

Debussy, Claude Achille, French composer,

19-6926, 7152-53

Decameron of Boccaccio, account of, 17-6152,

6154

Picture, garden where written, 17-6153

Decamps, Alexandre Gabriel, French painter,

6-2082

Decatur, Stephen, American naval officer

bravery in Tripoli, 17-6328

defeated ship Macedonian, 17-6329

note on, 17-6327

Picture, portrait, 17-6327

Deccan, southern part of India, 8-2696

De Celles, Alfred, French Canadian author,

15-5367

December. Latin for the 10th month reckoning from March, with us the 12th and last, having thirty-one days. In this month the sun touches the tropic of Capricorn at the winter solstice, its nearest distance south of the equator.

GENERAL INDEX

- Decemviri.** The Council of Ten appointed in 451 B.C. to administer government and draw up new laws for the Roman Republic.
- Decimal system** of numbers, 12-4397
- Decimeter,** measure of distance, 14-4902
- Decius Mus Publius,** sacrifice of self to save Rome, 11-3806
- Declaration of Independence** and Independence Day, 6-092
list of signers, with facsimiles of signatures, 20-7552
signing of, 1776, 4-1166
text and introductory note 20-7553-56
- Declination compass.** A compass used for measuring the variation of the magnetic needle from the astronomical meridian.
- Decline and Fall of the Roman Empire,** by Gibbon, 9-3202-04
- Decoration,** see Design; see also main articles, 20-7635
- Decoration Day,** observance of, 6-2092
- Dedeagatch,** port, 14-4926
- Deed.** A legal paper or document signed and sealed by the person whose wish it expresses and for whom it has been drawn up. The common usage of the word deed is as a contract for conveying real estate from one party to another either through a sale or as a gift.
- Deer,** description, 4-1441, 1446-48
Pictures, 4-1440, 1443, 1445, 1447
- Deerfield,** Mass., Indian attack, 3-778
- Deerhound,** dog. *Picture* (gravure), 2-716
- Defender of the Faith.** Title conferred by Pope Leo X on Henry VIII in 1521 in acknowledgment of a treatise written against Luther.
- Defenders of liberty,** * 13-4583-91
- Deferred annuity.** An annuity is an investment of money entitling the investor to a regular income, frequently until death occurs. A deferred annuity is an annuity on which payment is deferred or delayed until the beneficiary has reached a certain age.
- Defoe, Daniel,** English author
* life and writings, 4-1480-81
* Robinson Crusoe, extracts and summary, 2-665-75
Tale of Bob Singleton; extract, 12-4486
Picture, in pillory, 4-1476
- De Forest, Lee,** and wireless telephony, 17-6248, 6368
Picture, portrait, 17-6235
- Degas, Edgar,** French painter, 8-2711, 2714
Picture, A Dancer, 8-2711
- De Gerlache, Adrien,** see Gerlache
- De Hooch, Pieter,** see Hooch, Pieter de
- Dei gratia.** Latin for "by the grace of God"; frequently written D.G.
- Dei Manes,** gods of underworld
- Decius** sacrificed himself to, 11-3806-07
- Deimos,** moon of Mars, 9-3293
- Dekker, Thomas,** see Poetry Index for poem and note
- Delacroix, Ferdinand Victor Eugène,** French painter, 6-2081-82; 7-2369
Picture
Janizaries on the Charge, 6-2082
- Delagoa Bay.** Natural harbor on the east coast of Africa, containing the Portuguese port of Lorenzo Marques. It was discovered in 1502 by Antonio de Campo, a follower of Vasco da Gama.
- Delaine,** breed of sheep, 15-5576
- De la Mare, Walter.** English poet; born, Charlton, Kent, 1873.
poetry of, 12-4234
See also Poetry Index for poem and note
- Deland, Mrs. Margaret,** author, 14-5010-11
Picture, portrait, 14-5011
- De la Roche, Mazo,** Canadian novelist, 15-5370
- Delaroche, Paul (Hippolyte),** French painter, 6-2082
Picture, Last hours of Queen Elizabeth (gravure), 5-1824
- De la Rue, Warren,** invented oil process, 3-996
- De Laval, Carl Gustaf,** invented cream-separator, 1-388
- Delaware.** Second smallest state; area, 2,370 square miles; capital, Dover. Wilmington is the largest town. Leather making and knitting are leading industries, but agriculture is important. Abbreviation, Del. Nickname, the "Diamond State." State flower, the peach blossom. Motto, "Liberty and Independence." Delaware was
- Delaware (continued)**
named after Lord De La Warr, Governor of Virginia. First settlement near Wilmington, 1638.
described in Northeastern States, 10-3401-08; 11-3773-82; 12-4145-54
founded, 2-552
origin of name, 2-544
Penn gained possession, 2-553
ratified Constitution unanimously, 20-7559
signers of Constitution, 20-7574
signers of Declaration of Independence, 20-7557
slavery in, 7-2430, 2432
Pictures
Caesar Rodney, 18-6830
capitol at Dover, 11-3773
Du Pont Highway, 10-3407
flag (in color), 19-7190
Ridgely house, Dover, 12-4153
- Delaware River.** American river rising in the Catskill Mountains and flowing past Philadelphia into the Atlantic. It is navigable up to Trenton, 130 miles from its mouth. 360 miles. One of the greatest shipbuilding centres in the world.
Pictures, longest suspension bridge in world, 1-34
scene of Washington's crossing, 10-3403
- Del Cano, Sebastian,** see Cano
- De Lesseps,** see Lesseps
- Delft.** Ancient Dutch town, burial place of Grotius, Leeuwenhoek and Van Tromp. Here William the Silent was assassinated.
- Delhi,** India
architecture, Mohammedan, 15-5471
description, 8-2698, 2700
siege, in Indian mutiny, 8-2828
Picture, panoramic view (gravure) 8-2831
- Delian League,** Greece, 3-1080
- Delicious apple,** origin of, 11-4133
- De Lisle, Rouget,** see Rouget de Lisle
- Della Robbia, Luca,** see Robbia, Luca della
- De Long, George Washington,** arctic explorer, 13-4714-15
- De l'Orme, Philibert,** French architect, 18-6495
- Delos,** island
Pictures, ancient sculpture, 11-3991
- Delphic oracle,** 3-1078
- Delphinium,** see Larkspurs
- Del Sarto, Andrea,** see Sarto
- Delta**
Question about. What is a delta and how is it made? 5-1607
- Demand,** economic term, definition, 16-5934
- Demand and supply,** see Supply and demand
- Demavend, Mount,** Russia, 16-5848
- Demerara.** A river of British Guiana emptying into the Atlantic at Georgetown. An early settlement on its banks gave Demerara its name. 200 miles.
- Demerara sugar,** origin of name, 9-3190
- Demeter (Ceres),** goddess, 9-3227
- De Mille, James,** Canadian author, 15-5369
- Democrates,** architect of Temple of Diana, Ephesus, 15-5344
- Demon star,** name for Algol, 11-3926
- De Morgan, William,** novelist, 11-3899
- Democracy,** form of government, 5-1788
- Democratic Party.** One of the major political parties in the United States tracing back to Thomas Jefferson. It was called Republican at first, then Democratic-Republican, but about 1828, the second half of the name was dropped. In general the party has favored in the past strict construction of the Constitution, low tariffs, and broad suffrage, though this is not so true to-day.
and Jefferson, 5-1702; 11-3938
dropped part of name, 11-3939
- Demosthenes.** Greatest Athenian orator; born, Paiania, Attica, 383 B.C.; died, Calauria, 322 B.C.
led Greeks in struggle against Macedonia, 2-707; 3-1082
resisted Philip of Macedon, 2-707
Picture, portrait, 2-701
- Demotic writing,** business writing of Egyptians, 10-3548
- Dendera, Temple of.** *Pictures,* 14-5206
- Denison, Merrill,** Canadian dramatist, 15-5374
- Denkli,** for raising water
Picture, 7-2547
- Denmark**
agriculture, 15-5296

GENERAL INDEX

Denmark (continued)

- cities and towns, 15-5293, 5298
colonies, West Indies, sold to U. S., 19-7104
description, 15-5296-98
history, 15-5291-92, 5294
literature, *see* Danish literature
maps, 15-5297, 5301
national song, account of, 10-3612
song, patriotic, King Christian stood beside
the mast, 17-6252
territorial changes since World War, 18-6459
Pictures, 15-5295
- Dennis, Richard Molesworth**, *see* Poetry Index
for poem and note
- Denny, William**, builder of steamboats, 17-6402
- Density**, definition, 2-385-86
low measured, 2-386
- Densmore, James**, and invention of typewriter,
19-7214
- Dentatus, Manius Curius**, Roman statesman
story of, 3-889
Picture, refusing bribe, 3-889
- Dentine**, part of tooth, 6-1930
- Denver**. Capital of Colorado with a university,
a Catholic cathedral and many fine buildings.
The centre of a great mining district, it has
smelting and refining works, and trades also in
cattle.
Picture, civic centre, 19-6845
- Denys, St.** Athenian, called Dionysius, who was
made Bishop of Athens by St. Paul, and after-
ward sent by St. Clement to convert the people
of Paris, finally suffering death at their hands
on Montmartre. The patron saint of France.
- Department stores**, *see* Stores
- Depth bomb**, description, 18-6816
- De Quincey, Thomas**. English author and essay-
ist; born, Greenheys, Manchester, 1785; died,
Edinburgh, 1859.
as essay writer, 8-2866-67
Picture, portrait, 8-2865
- Darby, Conn.**, Howe Company, 9-3042
- Dermis**, inner layer of skin, 4-1416
- De Roberval**, *see* Roberval
- De Roncoules, Madame**, governess to Frederick
the Great, 11-4043
- Derrick**, explanation, 14-5004
- Dervish**. A Mohammedan belonging to a spe-
cial religious order and supposed to lead a life
of chastity, humility and poverty, like the
monks of Christendom. There are different or-
ders or brotherhoods, of which the three best-
known are: the Whirling, or Spinning, Der-
vishes; the Howling Dervishes; and the Wan-
dering Dervishes.
- Derzhavin, Gabriel**, Russian poet, 19-6906
- Descartes, René**. French essayist and scientist,
founder of modern philosophy; born, La Haye,
Touraine, 1596; died, Stockholm, 1650.
writings of, 18-6713
Picture, portrait, 18-6559
- Des Clayes, Gertrude**, *see* Clayes
- Desdemona**, character in Othello, 3-984
- Deserts**
* account of, 7-2416-17, 2421
* *scapes of the desert*, 18-6735-43
in America, 7-2421
in Arizona, 9-3025-32
in Arabia, 18-6674
in Australia, 7-2468
in trade-wind belts, 8-2666-67
main deserts of the earth, 6-2170-71
Gobi, 18-6586
Sahara, 18-6808
Poem about. *Afar in the Desert*, by Thomas
Pringle, 6-2035
Pictures, 7-2417; 18-6737-39, 6742
American scenes, 9-3027, 3031-32
Rio Grande, New Mexico, 7-2554
train of merchandise in desert of Central
Asia, 5-1597
Pictures (grayscale), 5-1602
- Deshinev, Simon**, arctic explorer
expeditions across Siberia, 8-2984
- Desiderio**, Italian sculptor, 13-1605
- Design**
Arabesque, 15-5466
based on Nature, 11-6873-74
cloth decoration, tied-and-dyed method, 1-232
geometrical drawing-card, 17-6264
history
in ancient pottery of Crete, 2-448
in ancient pottery of Greece, 2-450-51

Design (continued)

- making stencils for, 3-1155
pottery, directions for making, 14-5199
printed with sticks, 1-129-30
Pictures, Cretan vases, ancient, 2-448
Greek vases, ancient, 2-450-51
- Desman**, animal, description, 1-320
- Desmodus**, bat, sucks blood, 1-316, 318
- Des Moines**. Capital of Iowa, situated at the
confluence of the Raccoon and Des Moines rivers.
The surrounding region is rich in vast deposits
of bituminous coal which has greatly aided the
industrial growth of the city. Its site is pic-
turesque, on gently rolling hills.
- Des Moines River**. American river, rising in
Lake Shetek, Minnesota. Flows into the Mis-
sissippi River. 450 miles.
- De Soto, Hernando**, explorations, 1-244
Pictures
portrait, 1-245
exploring in America, 1-249
- Despreaux, Nicholas Boileau**, French critic
influence on literature, 4-1357
- Destouy, Auguste**, inventor, 18-6445
- Destroyers of U. S. Navy**, 18-6816
Picture, torpedo-boat destroyer, 18-6821
- Detector**, use in radio sets, 17-6366
- Detroit**. Fourth largest city of U. S. A., in
Michigan. It has great manufactures of auto-
mobiles, besides tobacco, leather, drugs, machin-
ery stoves and varnish, while its lake and river
traffic is enormous.
descriptive notes, 17-6041-42
Hull's surrender, War of 1812, 3-945
retaken from British, War of 1812, 5-1704
story, Wacousta, by Richardson, 9-3141-49
Pictures, 17-6041-42
- Deucalion and Pyrrha**, story of, 3-1114-15
- De Valera, Eamon**, leader of Sinn Fein, in Ire-
land, 8-2910
- Devereux, Robert**, *see* Essex, 2d earl of
- Devereaux, J. H.**, American locomotive, 5-1617
- Devilfishes**, description, 16-5774
- Devil's club**, plant, 19-6936
- Devil's paint-brush**, weed, 15-5390-91
Picture, 15-5391
- Devon**, breed of cattle, description, 4-1262
Picture (grayscale), 4-1268
- Devonian period**, *see* Geology—Devonian period
- De Vries, Hugo**, Dutch botanist, comments on
plant-breeding, 4-1388-90
- Dew**, formation of, 8-2922
Poem about. *A Million Little Diamonds*, 10-3644
- Dewar, Sir James**. Scottish chemist famous for
his work in the liquefaction of gases; born
Kincardine, 1842; died, 1923.
experiments with liquid air, 15-5425
- Dewberry**, fruit, 11-4020
Picture, fruit (in color), 11-4023
- Dewey, George** (1837-1917). Admiral of the
United States Navy. In 1898 destroyed the
Spanish fleet in Manila Bay.
victory at Manila, 10-3588
- Dewing, Thomas**, American painter, 10-3454
- De Wint, Peter**, Dutch-English painter, 6-2234
Picture. *Bray on the Thames*, 6-2233
- De Witt Clinton**, train, 5-1618
Picture, compared with modern locomotive,
5-1611
- Dewpoint**, temperature water condenses at,
8-2921
- Dexters**, breed of cattle, 4-1262
- Dholes**, wild dogs, 2-602
- Diabetes**, discovery of cure, 15-5493
relation to pancreas, 9-3224
- Diadumenus**, statue by Polyclitus, 13-4218
- Diagramma**, fish
Picture, striped diagramma (in color), 16-5786
- Dial telephone**, description and use, 17-6188
- Diamond-back**, rattlesnake, 15-5416
- Diamonds**
* account of, 19-7228, 7223-31
artificial, how made, 16-5944, 5946
cutting of, 19-7226
famous stones, 19-7232-34
sources of supply, 19-7228
Question about. Are there any diamonds in the
sky? 2-458
Picture, Cullinan diamond, 19-7225
Pictures (in color) facing 19-7225
- Diana (Artemis)**, goddess, account of, 9-3227
beliefs and customs about, 12-4200-01
Picture, statue, 12-4464

GENERAL INDEX

- Diana of Ephesus**
not the same as Greek goddess, 9-3277
temple, *see* Ephesus
- Diaphragm**, part of body, structure, 4-1326
- Diaries** in English literature, * 5-1727-30
- Diatoms**, one-celled plants, 3-881
make up ooze in sea, 7-2539, 2542
Picture, 4-1275
- Diatonic scale**, in music, 13-6698-99
- Diaz, Bartholomeu**. Portuguese navigator; born about 1445; lost at sea, 1500.
sailed round Cape of Good Hope, 9-3048
- Diaz, Porfírio**, president of Mexico, 19-7138, 7140
- Diaz de la Peña, Narcisse**, French painter, 7-2370
Picture, Storm (gravure), 7-2376
- Dibdin, Charles**, author of sea songs, 10-3606
See also Poetry Index for poem and note
Picture, portrait, 10-3605
- Dickens, Charles**
* life and writings, 8-2731-37
as crusader against public abuses, 8-2734-35
visits to U. S., 8-2736-37
writings
* David Copperfield, quotations and summary, 8-2773-81
* Old Man Named Scrooge, adaptation from Christmas Carol, 17-6115
scene from Nicholas Nickleby, 16-5683-89
See also Poetry Index for poem and note
Pictures
portrait, in his study, 8-2731
portrait, with characters from books, 8-2733
portrait, with parents, 15-5616
- Dickinson, John**, American writer, 12-4450
- Dickinson, Mary Lowe**, *see* Poetry Index for poem and note
- Dicksee, Margaret**, artist
Pictures
Sir Thomas Lawrence as a Boy, 7-2329
Swift and Stella, 5-1619
- Dicotyledons**, group of plants, 3-885
developed in Cretaceous period, 5-1660
- Dictaphone**, account of, 1-265
basic idea of, 17-6136
Picture and notes, 1-264-65
- Dictator**. A person possessing unlimited powers or authority; one who rules absolutely. The name comes from the Latin word *dictare*, to dictate. In times of anxiety and danger the ancient Romans appointed dictators for six months.
- Diderot, Denis**. French philosopher and writer; born, Langres, Champagne, 1713; died, Paris, 1784.
worked at L'Encyclopédie, 18-6715
- Dido**, queen of Carthage, story of, 3-1114
story of, in *Æneid*, 6-1987-88
- Diego Garcia**, island, 9-3184
- Diervilla**, plant, description, 15-5608
- Dies iræ**. Latin for the Day of Judgment; literally, "day of wrath."
- Diesel, Rudolf**, inventor of Diesel engines, 17-6406
- Diesel engines**, use in ships, 17-6406
- Diet**, *see* Food
- Diffusion** of air in the lungs, 4-1330
- Digestion**
* How to eat, 6-2083-86
* Food and its uses, 6-2185-88
bread, ease of digestion, 7-2424
meats, ease of digestion, 7-2568
milk, ease of digestion, 7-2384
process of digestion
in stomach, 6-2083-85
in intestines, 6-2085-86
pepsin aids, 6-2084
value of hydrochloric acid, 6-2084
sugar, ease of digestion, 6-2187
See also Food
Question about. Why is new bread more indigestible than old? 7-2486
- Digitalis**, medicine
extracted from foxglove, 17-6130
- Dijon**. Capital of Côte-d'Or, France, with a university and a beautiful Gothic cathedral. An important railway centre, it has flour and tobacco manufactures and an active trade in wine.
- Dikes**, Holland, 15-5556
Poem about. Leak in the Dyke, by Phæbe Cary, 5-1777
- Dillon, John**, Irish leader, 8-2940
- Dime**, experiment showing refraction, 12-4156
- Dimple**
Question about. What makes a dimple? 12-4506
- Dingan**, Zulu king, 9-3048
- Dingo**, Australian dog, 2-712
Picture, 2-603
- Diniz**, king of Portugal, 14-5184
- Dinornis**, extinct bird, and Sir Richard Owen, 2-593
Picture, 2-593
- Dinosaurs**, prehistoric animals, 1-95; 4-1402
size of, 14-5227
Pictures, 4-1401
- Dinothereum**, prehistoric animal, 5-1784
- Diocletian**, Roman emperor, reign of, 5-1865-66
ordered catacombs closed, 2-576
- Diogenes**. Greek Cynic philosopher who lived in a tub; born, Sinope, Asia Minor, about 412 B.C.; died, Corinth, 323.
- Dionysius**, king of Sicily, as a teacher, 8-2963
- Dionysius**, tyrant of Syracuse
and Damon and Pythias, 9-3064
- Dionysius Exiguus**, monk
and the Christian year, 11-4131
- Dionysius Thrax**, Greek grammarian, 2-702
- Dionysus (Bacchus)**, Greek god, 9-3227; 16-5750
- Diphtheria**, antitoxin for, 15-5492
- Diplodocus**, prehistoric reptile, size of, 2-634
Picture, 1-257
- Diplomacy**. The art or science of the carrying-on of political relations between independent countries. Ambassadors are the highest in rank of the diplomatic representatives of a country. Each important power or nation sends ambassadors to the other important powers. An ambassador, aided by a staff of trained helpers, conducts all state business between his own country and the country to which he is sent.
- Diploprion**, fish. *Picture* (in color), 16-5786
- Dipper**, name for constellation Great Bear, 6-1971
- Dippers**, birds, 14-5147
Picture (in color), 8-2898
- Diptera**, two-winged insects, 17-6418
- Dipterus**, prehistoric fish, 4-1176
Picture, 4-1177
- Dipylon vases**, ancient Greece, 2-450
Picture, 2-450
- Directions**, *see* Compass, Points of
- Disarmament**, Washington Conference, 1921
8-2674
- Discobolus**, statue by Myron, 12-4220
Picture, 12-4219
- Discordia**, goddess of discord, 9-3234
- Discount**. In business dealings, a discount is a reduction made in the total of a bill for goods purchased if the purchaser pays cash.
- Discovery**, ship, in antarctic exploration, 14-5092
- Diseases**
and chemical industry, 13-4531
* discovery of cures, 15-5481-93
germs cause, 2-558-59
insects cause, 15-5488-92; 18-6731-33
rats carry, 3-1134
Questions about
Are we creating many new diseases? 9-3355
Are we healthier than our ancestors? 12-4286
Do diseases ever disappear? 14-5086
Why are not all diseases infectious? 8-2872
Why are there some illnesses that we cannot get twice? 2-461
- Dishes**
casting in plaster molds, directions for, 7-2511-12
of clay, how to make, 14-5199-5200
See also Pottery
Picture, made by children, 14-5199
- Dislocations**, first aid for, 13-4847-48
- Disputes**
Question about. Why cannot two people decide disputes? 6-2250
- Disraeli, Benjamin**, Earl of Beaconsfield. English prime minister and novelist; born, London 1804; died there, 1881.
as a novelist, 11-3891-92
Pictures, portrait, 11-3891
portrait, in group, 7-2295
portrait, with note, 19-7161
portrait, with parents, 15-5619
- Dissenters**, given civic rights in England, 7-2298
- Distance**
Questions about
How can we judge real or pictured distance? 3-1116
How did the Romans measure distance? 2-463

GENERAL INDEX

District of Columbia. The federal district containing the capital of the United States; area, 70 square miles. Authority for establishing it was given in the Constitution (20-7567) and the site was selected by Congress. A tract lying on both banks of the Potomac and containing 100 square miles was ceded by Maryland and Virginia, but in 1846 the Virginia cession was returned. There is comparatively little manufacturing except for governmental purposes and most of the people depend directly or indirectly upon the government for a livelihood. Since 1874 the district has been governed by three commissioners appointed by the president. The residents have no vote though they pay taxes, but Congress pays a part of the expenses.

See Washington

Divers, see Diving

Divers, birds, 11-4129-30

Picture, 11-4129

Divine Comedy, poem by Dante, account of, and excerpt, 17-6151-52

Divine right of kings, a theory of government in which the king could do no wrong.

supported by James I and Charles I of England, 6-1974, 1976

Diving

* description, 12-4185-92

* directions for, 19-6955-58

how to breathe properly, 4-1330

air breathed by diver purified with potash, 12-4186-87

depth of, 12-4185

diving-bell, 12-4191

diving-dress, 12-4185, 4190, 4192

for sponges, 8-2916-18

submarine air-room, 12-4186

treasures recovered by, 12-4186

Questions about

Why do we rise to the surface when we dive? 18-6557

Why must a diver have lead on his boots? 16-5842, 5844

* *Pictures, with notes, 12-4185-92*

sponge fishing, 8-2917-18

Divining rod. A forked rod, usually a branch of hazel, sometimes used for discovering water or minerals underground.

Division of labor, see Labor, Division of

Dixie, song, how written, 18-6511-12

Dixville Notch, New Hampshire. *Picture, 7-2422*

Dizziness

Question about. Why does everything spin around when we are dizzy? 15-5519

Dnieper. River of South Russia—the third largest in Europe. Rising in the Valdai Hills, it drains 260,000 square miles, much of it within the corn-growing Ukraine, famous for its rich black earth. It passes Smolensk, Kiev and Ekaterinoslav, and empties into the Black Sea near Kherson. The Desna, Pripet and Beresina are its largest tributaries. 1,200 miles

Dniester. River rising in the Carpathians, in Poland, and flowing between Russia and Rumania into the Black Sea. 800 miles

Dobson, Austin. English poet and biographer; born, Plymouth, 1840; died, Ealing, 1921.

poetry of, 12-4232

See also Poetry Index for poem and note

Dobson, William, British painter, 6-2000

Picture. Portrait of Endymion Porter, 6-2003

Dock, Great water, or Giant, 16-5874, 5876

Picture, 16-5874

Doctor Johann Faust, note on, 17-6268

Doctors of medicine, see Physicians

Dodder, parasitic plant, 1-332; 19-6939

Dodecanese, islands, 18-6459

Dodge, John, and sewing machine, 19-7212

Dodge, Mary Mapes, writer for children, 14-5015

See also *Poetry Index* for poems and notes

Dodgson, Charles Lutwidge, see Carroll, Lewis

Dodona, a wood, in mythology, 9-3237

Dodos, extinct birds, 1-94

account of, 12-4284

Picture, 12-4283

Dog days, origin of phrase, 9-322

Dog fennel, name for thoroughwort, 19-7094

how differs from pineapple weed, 19-6540

Picture, 19-7094

Dog-hobble, plant, description, 19-7089

Picture, 19-7091

Dog rose

Picture, fruit (in color), 11-4027

Dog star, see Sirius

Dog-tooth violet, on Pacific coast, 19-6927-28

Doge. The chief magistrate of Genoa or Venice in the days when those cities were independent republics.

Doge's Palace, Venice, 4-1456, 1458

Dogfish, description, 16-5893

Pictures, 16-5895

common dogfish (in color), 16-5783

Dogger Bank. North Sea submarine ridge providing the chief fishing-ground of the Grimsby Yarmouth and Lowestoft trawlers. Naval battle in World War, 1916.

note and picture, 11-4056

Dogs

* Friendly dogs, 2-711-18

* Wild dogs, 2-597-602

African hunting dog, dhole, 2-602

ancestors of, 2-711-12

Azara's dog, 2-602

breeds of, 2-712, 717-18

bush dogs, 2-602

crab-eating dog, 2-602

dingoes, in Australia, 2-712

drawing of, how to make, 4-1394

Eskimo sledge-dogs, 2-717; 7-2564

fables about

The dog and the shadow, 11-3986

The dog and the wolf, 17-6323

The dog in the manger, by Æsop, 14-4946

The old hound, 4-1342

first appearance in geologic eras, 5-1784

hunting dogs, 2-718

intelligence, 2-712, 717

kennel, concrete, 17-6259-60

kennels, how to make, 16-5766

Newfoundland, 2-710, 718

raccoon dog, 2-602

St. Bernard, 2-710, 718

shepherd, 2-717

stories about

Dog that knew his master, 11-4139

Dogs who have done their bit, 16-5735-38

Stickeen, 12-4195-97

use, to draw sleds, 16-5794-95

Poems about

Dog and the Water-Lily, by William Cowper, 7-2528

Elegy on the Death of a Mad Dog, by Oliver Goldsmith, 3-1141

Fidelity, by William Wordsworth, 11-4115

Questions about

Do cats and dogs ever cry? 17-6179

Why does a dog go round and round before it lies down? 4-1231

* *Pictures, 2-710-19*

dog-team, 12-4339

dog-teams being fed, 7-2494

End of the Trail, by Maud Earl, 2-711

* various breeds (grave), 2-713-16

wild dogs, wolves, etc., 2-597-603

Dog's-tail, fodder-grass, 7-2410

Picture, with note, 10-3655

Dogwood, trees, 13-4774, 4778-79

of Pacific coast, 19-6936-37

Pictures, 13-4774, 4779; 19-6935

fruit (in color), 11-4022

Doldrums

Question about. What parts of the ocean are known as the doldrums? 7-2487

Doll dressmaking, directions, 2-619-20

Armenian doll, how to dress, 10-3629

bonnet for baby doll, 12-4501

Dutch doll, how to dress, 10-3630

Eskimo doll, 10-3629-30

French doll, 10-3510

German doll, 10-3510

Hindu doll, 11-4081

Hungarian doll, 10-3628-29

Italian doll, 10-3627-28

Japanese doll, 11-4081

Russian doll, 10-3630-31

Spanish doll, 10-3628

Swedish doll, 10-3627

Pictures

foreign dolls in costume (in color) facing 10-3510

Dollar, gold, 16-5681

Dollman, J. C., artist

Pictures

A Very Gallant Gentleman, 14-5088

"Aah!" said a Hundred Thousand Apes,

16-6032

GENERAL INDEX

Dolls

Christmas basket, how to make food for filling, 6-2043-44
clothespin dolls, 3-1030
cork, how made, 2-514
dressmaking, *see* Doll dressmaking
Feast of Dolls, Japan, 2-574
Indian, how to make from straw, 18-6645
jewelry for, how to make, 4-1399
John Chinaman doll, made from peanuts, 2-512
mending head, 13-4737
Red Riding-Hood, how made, 2-516-17
Poem about. Lost Doll, by Charles Kingsley, 14-5129

Pictures

clothespin dolls 3-1030
colonial period, American, 3-973
made by Hopi Indians, 18-6620
Red Riding-Hood doll, 2-516-17
Doll's house, directions for making, 3-1150
Dolomites, Limestone mountain group in the Trentino, with jagged peaks and magnificent scenery.

Dolphins

account of, 6-2218
varieties of, 6-2220
Picture, 6-2213

Domenichino (Domenico Zampieri), Italian painter, 3-1108

Domesday Book, 4-1439

Domestic animals, *see* Animals—domestic

Domestic architecture, *see* Architecture—domestic

Domestic science. For list of main articles, *see* 20-7637-39

Domett, Alfred, *see* Poetry Index for poem and note

Dominic, St., life of, 13-4864

Picture, portrait, 13-4859

Dominica. British West Indian island, largest of the Leeward group; area, 305 square miles; capital, Roseau. It produces limes, cocoa, coconuts, oranges, spices and coffee, and has hot springs and a boiling lake.

Dominican Republic on island of Haiti, 19-7100-7101

rare stamps, 16-5887

See also Haiti

Dominion Police, Canada, 16-5834

Dominoes

games played with, 12-4375

tricks with, 12-4498

Domitian, Roman emperor, 5-1863

Domremy, France, birthplace of Joan of Arc, 16-5820

Don. River rising south of Moscow and sweeping through central Russia into the Sea of Azov. It passes Voronezh, Novo Tcherkask and Rostov, and drains 166,000 square miles, its chief branch being the Donetz. 1,125 miles.

Don John of Austria, *see* John of Austria

Don Marquis, *see* Marquis, Donald Robert Perry

Don Quixote, by Cervantes, note on, 19-7128-29

* quotations and summary, 5-1629-38

Donatello (Donato di Betto Bardi), Italian sculptor, 5-1739-40; 13-4604-05

Pictures

Gattamelata statue (gravure), 13-4615
groups of children (gravure), 13-4610-11
head of statue of David (gravure), 13-4614
portrait, 4-1455
singing gallery in church of San Lorenzo (gravure), 5-1745; 13-4610-13, 4616
statue of Donatello, 5-1735
statue of St. George (gravure), 13-4613
young child's head, 13-4615

Donelson, Fort, *see* Fort Donelson

Donizetti, Gaetano, Italian musical composer, 19-6924

Donkeys

account of, 6-2018-20

fable about, Donkey's wish, 15-5538

origin and use, 6-2020

See also Asses

Question about. How can a donkey eat a thistle, thorns and all? 6-2124

Pictures, 6-2017, 2019

Donkey's tail. Putting on, game, 18-6519

Donnacona Indian chief, welcomed Cartier and was kidnapped by him, 2-678

"Don't give up the ship," when said, 5-1704

Doodle-bugs, *see* Ant-lions

Dooley, Mr., *see* Dunne, Finley Peter

Doors

Question about. Why are the doors of rooms generally in a corner? 16-5962

Pictures, of burglar-proof ones, with notes, 6-2024-25

Dor bug, *see* June bug

Dorcas, Christian disciple, story of, 1-124

Picture, 1-124

Dordrecht, Holland

Pictures, 15-5561

Doré, Paul Gustave, French painter

Picture, Cyrus the Great restoring sacred vessels to Jews, 3-917

Dorians, ancient Greek people, 3-1072, 1074

Doric Order, in architecture, 15-5343

Dormouse, 3-1133

Picture, 3-1129

Dorr's Rebellion. In 1842 Thomas William Dorr started a revolutionary movement to change the State Constitution in Rhode Island. He was sentenced to life imprisonment for high treason in 1844 but was released three years later and had his civil rights restored in 1851. Rhode Island adopted a new constitution a few months after Dorr's Rebellion.

Dortmund-Ems Canal, Germany, 13-4786

Dory, fish. *Picture* (in color), 16-5783

Doryphorus, statue of Polyclitus, used as Canon, 12-4218

Dostoevski, Feodor, Russian novelist, 19-6911

Picture, portrait, 10-3493

Dotterels, birds

Picture (in color), 9-3283

Doudney, Sarah, *see* Poetry Index for poems and notes

Doughty, Thomas, American painter, 9-3332

Douglas, Sir James, called Black Douglas, and Bruce's heart, 12-4210

Douglas, Katherine, *see* Barlass, Kate

Douglas, Stephen Arnold

and Kansas-Nebraska bill, 7-2429

life, 10-3495

Picture, portrait, 10-3493

Douglas, William, *see* Poetry Index for poem and note

Douglas fir, wood of, 12-4249

Douglas spruce, wood of, 12-4249

Douglass, Frederick (1817-95). American Negro orator and anti-slavery leader; minister to Haiti, 1889-91.

Doulton, Henry, English potter, 5-1664

Douro. River of Spain and northern Portugal. Rising in the Pico de Urbion, it flows into the Atlantic below Oporto, passing Soria and Zamora in Spain and an important wine-growing district in Portugal. 485 miles long, it is navigable for 90 miles, and has a basin of 37,500 square miles.

Douw, Gerard, Dutch painter, 5-1594

Picture. Young Mother, 5-1591

Dover. Capital of the state of Delaware, and the county seat of Kent County. It is on the St. Jones River, 48 miles from Wilmington, in a good fruit-growing region and has fruit-canning and evaporating works.

Picture, Capitol, 11-3773

Dover. Kentish port on the Strait of Dover, with an important passenger-steamship traffic with Calais. The Roman Dubris, and later chief of the Cinque Ports, it was very important in the Middle Ages; the ancient castle has a fine Norman keep.

Doves, birds

* Pigeons and the doves, 12-4283-88

fable about, Dove and the ant, by Æsop, 14-4946

mourning or turtle dove, 12-4288; 14-5020-21, 5144

Poem about. The Dove, by John Keats, 3-1142

Pictures, 12-4287

nest, 13-4765

turtledoves, 12-4287

Pictures, (in color)

European rock dove, 9-3284

European stock dove, 9-3130

turtle doves, 8-2897

Dow, Gerard, *see* Douw, Gerard

Down. Maritime county of northern Ireland, area, 957 square miles; capital, Downpatrick. Cotton- and flax-spinning and the manufacture of linen and muslin are leading industries, Newry and Newtownards being among the chief towns. Here are the Mourne Mountains.

GENERAL INDEX

- Down in the deep, deep sea**, * 12-4185-92
- Doyle, Sir Arthur Conan**. English novelist and physician; born, Edinburgh, 1859.
historical and detective stories, 11-3898
See also Poetry Index for poems and notes
- Drachenfels**, mountain of the Rhine, legends of, 18-6503-04
- Drafts**, of ships, 14-5003
- Dragoman**. Interpreter to an embassy or consulate in the Near East; also an agent for travelers. The word is from the Arabic. In Western Europe "courier" is used.
- Dragon-boat, Festival of the**, China, 2-430
- Dragon-fly**, larva of, 17-6066
Pictures (in color), facing 18-6720
- Dragons**, imaginary animals, description, 1-354
in legends, may have been woolly rhinoceros, 5-1828
Pictures, 1-358
Chinese, 1-355
flying-dragon, 1-354
St. George's fight with, 1-357
- Drain pipes**, earthenware, invented by Henry Doulton, 5-1664
- Drake, Edward L.**, and petroleum well, 3-996; 13-4534-35, 4543
- Drake, Sir Francis**, English mariner
* life and adventures, 14-4962-65
and Armada, with pictures, 5-1819
description of, for game, 8-3023
and potatoes, 7-2618
mended ship with asphalt in Trinidad, 19-7103
message, "Cantharides," about Armada, 18-6723
trip around world, 1-250; 8-2980; 14-4964
Poem about. Drake's Drum, by Sir Henry Newbolt, 16-5924
Pictures
portrait, 1-245; (gravure) 5-1821
scenes from his life, 14-4963
- Drake, Joseph Rodman**, author, 13-4629
See also Poetry Index for poems and notes
Poem about. On the Death of Joseph Rodman Drake, by Fitz-Greene Halleck, 3-1142
- Drake**, ship, capture by John Paul Jones, 17-6326
- Drakensberg Mts.**, Africa. *Pictures*, 9-3046, 3049
- Drama**
Canadian, 15-5374
English, *see* English poetry and English prose
Hindu, 15-5461
Japanese, 15-5461
See also Plays
- Dramatis personæ**. Latin for "characters in a play."
- Dramatists** of Shakespeare's time, 2-721-22
- Draper, Herbert**, artist
Picture. Heaven that Lies about a Child, 7-2635
- Draper, John W.**, took first photograph of a person, 18-6523
- Drave**. Largest tributary on the right bank of the Danube. Rising in the Tyrol, it forms much of the boundary between Jugo-Slavia and Hungary. 465 miles.
- Dravidian architecture**, in India, 15-5471
- Drawing**
animals, how to draw
camel, 6-2165
cat, 11-3855
cow, 18-6642
dog, 4-1394
frog, from circles, 5-1658
giraffe, 6-2165
horse, 2-628
monkey, 6-2165
owl, from circles, 5-1658
panther, 6-2165
distorted pictures, how to make, 18-6644
faces, directions for making, with picture, 17-6261
quality of line, 5-1746-47
queer pictures built up from squares, 2-753
rabbit's ears, trick picture, 19-6944
should express qualities of objects, 2-445
silhouette portraits, how to make, 19-7077
trick drawings, 17-6394
See also Lettering and main articles, 20-7635
- Drawing a pig**, game, 18-6519
- Drawing-card**, how to use, 17-6264
- Drawn-thread work**, directions for, with pictures, 6-2046, 47
- Drayhorse**. *See* *drawn*, 6-2046
- Drayton, Michael**, English poet, 3-1124
See also Poetry Index for poems and notes
- Dreadnaught**, ship. *Picture*, 11-2317
- Dreams**
causes of, 5-1749
Questions about
Do animals have dreams as we do? 12-4398
Do we see ourselves in dreams? 17-6179
How do we know we have dreamed when we wake up? 6-2123
Why do I dream? 9-3099
- Drehbel, Cornelius**, made early submarine, 1-197
- Dred Scott decision**, meaning, 7-2429
- Dredging**, methods of, with pictures, 14-5082-83
- Dreiser, Theodore**, author, 14-5012
- Dresden**, Germany, note and picture, 12-4171
Picture, (gravure), 12-4179
- Dresden china**. A kind of fine porcelain first made in 1710 at Meissen, near Dresden, Germany, by Johann Friedrich Böttger, a chemist.
- Dressmaking**, *see* Doll dressmaking; Sewing
- Dreyfus, Alfred**, confined at Devil's Island, 19-7104
- Drinking-basin**, concrete, how to make, 14-5117
- Drinkwater, John**. English poet and dramatist. Abraham Lincoln and Mary Stuart are two of his best plays. Born, Leytonstone, Essex, England, 1882.
poetry on the stage, 12-4234
- Dritzehn, Andrew**, and Gutenberg, 9-3382
- Driver, Stephen**, named U. S. flag Old Glory, 19-7184
- Dromedary**, kind of camel, 5-1598
- Drone-flies**, 17-6423
- Drongos**, birds, 8-2968
- Dropworts**, plants, account of, 16-5880
note and picture, 16-5875
- Drowning**
avoided by floating, 11-4082
directions for first aid, 17-6147-48
- Drugs**
effect on blood cells, 3-937
effect on sweating, 4-1419
See also Medicines
- Drum**, toy, how to mend, 13-4737
- Drummond, Henry**, author, 11-4003
- Drummond, William Henry**, Canadian poet 14-5108
See also Poetry Index for poems and notes
Picture, portrait, 14-5109
- Dry cell**, note and picture, 16-5664
- Dry farming**, in the West, 18-6432, 6434
- Dryads**, in mythology, 9-3237
- Dryden, John**
* life and work, 4-1357-59
as essay writer, 8-2865
See also Poetry Index for poem and note
Picture, portrait, 4-1357
- Drydock, Dewey**, 17-6406
- Drygalski, Erich von**, antarctic explorer, 14-5094
- Dublin**. Capital of the Irish Free State. A Scandinavian settlement, during the Middle Ages it was the capital of the English Pale, while in the 18th century an Irish parliament was held here. It is important chiefly as a commercial centre, but there is a large brewing and agricultural trade, and much live stock is exported.
Picture, Sackville Street, 8-2935
- Dublin Castle**. *Pictures*, 8-2929
- Ducat**. A gold coin formerly used in many countries of Europe. It was issued first in the 11th century by Roger II, Duke of Apulia, and bore the following Latin inscription: "Sit tibi Christe, datus, quem tu regis, iste ducatus" (Lord, thou rulest this duchy, to thee be it dedicated). From *ducatus* came the name "ducat."
- Duccio di Buoninsegna**, Italian painter, 2-691
Picture. Madonna and Child, 2-697
- Du Chaillu, Paul Belloni**. French African explorer; born, Paris, 1825; died, St. Petersburg (Leningrad), 1903; brought bodies of gorillas from Africa.
- Duck-billed platypus**, *see* Platypus
- Duck hawk**, *see* Peregrine falcon
- Duck under the water**, game, 8-2743
- Ducks**
* account of, 11-3888-90
anecdote of, by Jack Miner, 8-2814
eider ducks, 11-3890
wood ducks, 14-5018
Questions about
How can a duckling swim without being taught? 15-5518
Why does a duck keep dry in the water? 10-3580

GENERAL INDEX

Ducks (continued)

- Pictures*, 11-3886-87
wood duck, 14-5019
Pictures (in color)
American wood duck, 12-4370
canvasback, 12-4369
eider duck, 8-2897
Gadwall duck, 9-3284
king eider duck, 12-4370
Mallard duck, 8-2898
mandarin duck, 12-4371
pintail, 9-3282
pochard ducks, 9-3132
shoveler duck, 9-3130
teal ducks, 8-2899
tufted ducks, 9-3129
Duckweed, plant, 4-1278
strange leaves of, 2-615
Dudevant, Madame, see Sand, George
Dudley, Robert, see Leicester, Earl of
Duff, S. W., translator of *Aeneid*, see Poetry
Index for translation
Dufferin and Ava, Marquis of, governor-general of Canada, 4-1492
Duffield, G., hymn-writer, 12-4438
Dug-out, primitive boat, 11-3909
Dugong, sea mammal, 6-2214
Picture, 6-2219
Du Guesclin, Bertrand, Constable of France, 10-3468
Picture, portrait, 10-3468
Duiker, animal. *Picture*, 4-1440
Duluth. Port at the western end of Lake Superior, in Minnesota. It has a splendid harbor and an immense trade in grain and timber.
Dulcimer, musical instrument, 5-1795
Duma. Representative assembly of the Russian empire under the Tsarist régime. First formed in 1905, it worked under constant difficulties until the Revolution of 1917.
See also 16-5696
Dumas, Alexandre, the Elder. French historical novelist and writer of plays; born, Villers-Cotterets, near Soissons, 1803; died, Puys, near Dieppe, 1870. Wrote or signed 257 novels.
* Count of Monte Cristo, quotations and summary, 18-6573-80
note on, 18-6573
Pictures, portraits, 18-6559, 6716
Dumas, Realier, French painter
Picture, Napoleon as a boy at school (gravure), 6-2209
Dumbness
Question about. What makes some apparently healthy people dumb? 14-5222
Du Moncel, Théodore Achille Louis, and microphone, 17-6246
Dunbar, Scotland, force of waves at, 7-2542
Duncan I., king of Scotland, 12-4206
Duncan, Mary Lundie, see Poetry Index for poem and note
Duncan, Norman, Canadian author, 15-5371
Duncan, Sara Jeannette, see Cotes, Mrs. Everard
Dunclad, The, by Pope, 4-1359
Dundee. Third largest Scottish city and port, on the Firth of Tay, in Forfarshire. Has great jute, hemp and flax manufactures, considerable shipbuilding, preserving, dyeing and engineering industries, and is the chief centre for the British whale and seal fisheries.
Dunedin. Chief manufacturing centre of New Zealand, in South Island. It is also a great university and educational centre.
settlement of, 7-2572, 2576
Pictures, 7-2580
Dunk-a-doo, name for bittern, 14-5020
Dunkirk. Northernmost port of France, on the Strait of Dover. It has a fine harbor and considerable manufactures.
sold to France by Charles II. 6-1980
Dunlin, bird. *Picture* (in color), 8-2898
Dunlop, J. B., invented tire, 4-1406
Picture, on the Dunlop rubber estate, 4-1405
Dunluce Castle, Ireland. *Picture*, 8-2931
Dunne, Finley Peter, American author, 13-4817
Duns Scotus, John (about 1265-1308). A great Scottish thinker and schoolman of the Middle Ages. He joined the Franciscan Order, studied at Oxford, then became a professor of theology. He removed to the Continent and won a reputation for vast learning. It was from *Duns*, applied satirically to a stupid person, that our word "dunce" came.

- Dunstan, Saint**, Archbishop of Canterbury, influence of, 8-2845
Picture, reproving King Edwy, 8-2848
Duodecimal system of numbers, 12-4397
Duomo, Florence, see Florence
Dupleix, Joseph François, Marquis. French soldier and administrator: born, Landrecies, 1697; died, Paris, 1764.
opposed Clive in India, 8-2826
Dupré, Jules. French landscape-painter; born, Nantes, 1811; died, L'Isle-Adam, 1889.
method of painting, 7-2370
Picture, Great Oak (gravure), 7-2374
Duran, Carolus, French painter, 8-2857-58
Durand, Asher B., American painter, 9-3332
Picture, landscape, 9-3335
Durazzo. Ancient Dyrrhachium, Adriatic port. Sought by the Serbians as an outlet to the sea in 1912; opposition of Italy and Austria-Hungary gave the port to Albania.
Durban. Commercial capital and port of Natal, with a fine modern harbor. A very handsome place, it is the greatest port on the African east coast, and exports much coal.
Picture, 9-3053
Durbar. Court or council of a native ruler in India; also an official reception or state ceremony. Specially magnificent durbars at Delhi have marked the proclamation of successive British sovereigns as emperors of India.
Dürer, Albrecht, German painter and engraver.
4-1341-45
in Venice, 4-1461
Pictures
portrait, 4-1455; in group, 4-1463
Adoration of the Magi, 4-1346
drawings, 4-1348
Nuremberg Town-band, 19-7071
Portrait of a Young Man, 4-1347
Portrait of Jerome Holzschuher, 4-1347
Stephen Baumgartner as St. George, 4-1347
Durham, John George Lambton, 1st earl of, governor-general of Canada
actions and report after rebellion of 1837-38, 4-1483-84
restored peace in Canada, 3-946
Durham. Northern English county; area, 1,013 square miles; capital, Durham. Containing one of the chief English coal-fields, it also produces iron, lead, salt and limestone; while the shipbuilding, glass, chemical and woolen industries are important.
cathedral, 16-5964
Picture, cathedral, 16-5965
Durham, breed of cattle, description, 4-1262
Durra, cereal, 5-1856
bread made from, 1-372
D'Urville, antarctic explorer, 14-5090
and Loyalty Islands, 9-3304
Picture, portrait, 14-5089
Duse, Eleonora. Italian tragedienne. Born, Vigevano, Italy, 1861, died, Pittsburgh, Pa., 1924, while on tour. She was Italy's greatest actress and was the inspiration of many of Gabriele d'Annunzio's plays.
Düsseldorf. German city on the Rhine with great iron and cotton industries.
Dust
in space outside earth, 10-3665
Questions about
Where does all the dust go to? 5-1809
Where does common dust come from? 6-2125
Dustin, Mrs. Hannah, escape from Indians, 3-778
Dutch belted, breed of cattle, 4-1262
Dutch East India Company, early settlement in South Africa, 9-3048
Dutch Guiana, see Guiana, Dutch
Dutch painting, see Painting, Dutch
Dutch West India Company, formed in 1621, 19-7099
Dutchman's breeches, plant, 17-6275
Picture, 17-6272
Duty
Poems about
See list, under heading "Conduct of Life," 20-7676
Duveneck, Frank, American painter, 9-3336
Duxbury, Mass.
Picture, John Alden house, 2-517
Dvorák, Anton, composer, 19-6925-26
Dwale, see Nightshade—deadly
Dwarf cornel, see Bunch-berry

GENERAL INDEX

Dwellings. *see* Houses

Dwina, Northern. Russian river flowing into the White Sea. 1,000 miles long, it drains 140,000 square miles, and is free from ice for half the year.

Dyaks. Head-hunting cannibals of Borneo who belong to the Malayan division of the Oceanic Mongols. They live in huts built on piles.

Dyck, Sir Anthony van, *see* Van Dyck, Sir Anthony

Dyeing. The coloring by artificial means of silk, wool, cotton, straw, fur, leather, etc., so that the colors thus given will not be removed easily through washing, light or other natural bleaching influence. The art of dyeing is very ancient and extended to all known peoples of the world.

Dyer, Sir Edward, *see* Poetry Index for poem and note

Dyer, John, poet, 6-2028

Dyer's weed, flower

Picture (in color), 14-4990

Dyes

* plants producing, 9-3152-54

aniline, 13-4531-32

coal-tar, 13-4531-32

from plants, 5-1627

Dyewood, name for logwood, 9-3153

Dying Gaul, statue, formerly called Dying Gladiator, 12-4460, 4467

Picture (gravure), 4-1208

Dykes, *see* Dikes

Dynamite. A powerful explosive consisting of nitroglycerine with some absorbent. It is exploded by a percussion fuse containing fulminating mercury. It has a disruptive force ten times as great as gunpowder.

Dynamos, *see* Electric generators

Dyspepsia. Stomach trouble or gastric derangement whereby the powers of digestion are impaired.

Dziggetai, animal, 6-2020



E Pluribus Unum. The motto of the United States, from the Latin meaning "Out of Many, One." First appeared on the design for the Great Seal recommended to the Continental Congress in 1776.

Eads, James B. (1820-87). American engineer and bridge builder.

Eagle. A gold coin of the United States (value \$10), from the eagle on the reverse. There are also a gold double eagle (\$20), a half eagle (\$5) and a quarter eagle (\$2.50).

Eagle-rays, name for devilfishes, 16-5774

Eagles

* account of, 10-3756-58

fable about, by Æsop, 4-1186

North American, 13-4762

Pictures

golden eagle (in color), 9-3129

sea eagle, 10-3775

white-tailed sea eagle (in color), 8-2897

Pictures (gravure), 10-3761-64

Eakins, Thomas, American artist, 10-3453

Picture, Chess-players (gravure), 10-3464

Ear

* Marvel of hearing, 9-3365-16

* Our wonderful canals, 10-3425-27

diagrams showing structure, 9-3305, 3307

ear drum, 9-3306, 3308

first aid in bleeding, 15-5600

how to remove something from, 11-4082

power to distinguish sounds, 18-6438

Questions about

Where should we look for the ears of a frog? 10-3474

Why do our ears seem to sing at times? 2-687

Picture, semicircular canals, 10-3475

Ear-shells, molluscs, description, 19-6897

Picture, shells (in color), 19-6896

Earl, Maud, artist

Picture, End of the Trail, 2-711

Earl. Title which in feudal times meant that its holder was ruler of a county. In Great Brit-

Earl (*continued*)

ain and Ireland an earl ranks below a marquiss and above a viscount. It corresponds to the title of count as used on the Continent. Hence, an earl's wife is a countess.

Earle, Ralph, American painter

Picture, Lady Williams and child, 3-969

Early, Jubal Anderson (1816-94). American soldier, born in Virginia. He graduated from West Point, but resigned from the army to practice law; served in the Mexican War; entered the Confederate service, and served to end of war. in the Shenandoah Valley, 7-2442

Early days of Greece, * 11-3987-94

Early leaders of the Church, * 8-2843-50

Earrings

Question about

Are earrings good for the eyes? 1-187

Ears, *see* Ear

Earth

* Big ball we live on, 1-17-25

* Earth and the moon, 10-3535-44

* Face of the earth, 6-2169-76

* Forests, woods and deserts, 7-2415-21

* How fire and water made the world, 2-525-27

* How sun and wind made the hills, 2-629-34

* How the earth was made, 1-141-44

* Inside the wonderful ball, 2-385-89

* Mountains and glaciers, 7-2313-18

* Rivers and the seas, 7-2537-42

* This great world of ours, 1-43-47

* What climate means to us, 8-2663-68

* Why the seasons come and go, 8-2791-94

area, square miles on surface, 6-2169

axis, slanting of, 1-22

belts of vegetation, 6-2170

centre, heat of, 2-387

changes in, since first crust formed, 1-20, 22

changes during Primary and Secondary geological eras compared, 4-1401

circumference, how measured, 16-5742

cooling of, in early periods, 1-144

crust, changes in, through time, facing 3-773

density of, 2-386

diagram, showing position of sun and moon,

10-3535

dissipation of energy, 15-5571-72

distance from sun and length of year, 9-3180

energy from sun, 8-2664

* formation of, 2-525-27

heat of, and radium, 2-387-88

interior heat, theories about, 1-144

lost continent between Asia and Australia,

8-2717-18

maps

food plants, 19-7247

showing parts known, different periods, 1-42

showing paths of eclipses of the sun, 16-5843

showing time zones, 16-5841

showing world transportation, 1-48

with note, 1-45

motion

picture map showing rate of travel, 1-239

speed of, 1-24

spinning, effects of, 1-22

* Three ways the earth moves, 1-235-39

turning on axis and traveling round sun,

chart and explanation, 1-18-19

varying rate, Poles and Equator, 14-5035-36

origin, theories of, 1-143-44

population, 1-46

roundness, proved by appearance of ship, 1-21

shape of, 7-2602

at early period, 2-525

size, 2-385

compared with sun, 9-3171

compared with universe, 1-17

in map of skies, 9-3039

* strata, or layers, 2-631-34

thickness of, 2-389, 525

weight compared to Mercury, 9-3290

See also Geology; Glaciers; Mountains; Physical geography

Questions about

Are the clouds part of the earth, and do they

go round with it? 1-212

Can we fall off the earth? 12-4504

Could a stone be dropped through a hole

through the earth? 15-5365

Could the earth support all the things that

are born? 13-1827

Do the people of the Poles spin around like

a top? 6-2252

GENERAL INDEX

Earth—Questions about (continued)

- Does everything in the air move with the earth? 16-5746
- Does the earth ever bump into anything? 16-5740-41
- Has the earth a light of its own like the sun? 12-4398
- How did men find out the earth's circumference? 16-5742
- How do we know that the earth is in motion? 15-5517
- How does the earth turn without shaking? 8-3013
- If the earth is a ball, why does an earthquake shake only part of it? 18-6554
- If the earth is shrinking, shall we ever be toppled off? 14-5218
- If we could go on traveling upward, where should we end? 17-6175
- Is the earth getting smaller all the time? 6-2122
- Is the earth quite round? 7-2603
- Is the inside of the earth a vast hollow? 7-2610
- Why did not the earth burn up when it was a ball of fire? 4-1233
- Why do we not feel the earth going round? 11-3842
- Why is the world light when the sun is behind clouds? 16-5744
- Will the earth ever be cool right through? 18-6553
- Will the world become like the moon? 1-313
- Would the earth seem to be up in the sky if we were on the moon? 4-1452

Pictures

- as seen from moon, 10-3537
- crust of the earth in different ages (in color), facing 3-773
- diagram of orbit, 9-3290
- diagram showing why days vary in length, 8-2791
- showing size, compared with flames of sun, facing 9-3170
- showing size, compared with sun, 11-3921
- showing size in solar system, 9-3179
- showing slant of axis, now and in future, 1-238
- stages in formation, 2-632

"Earth-bread" from lichens, 5-1628

Earth pillars

- Pictures, with notes, 6-2074
- "Earthly Paradise," name given to Damascus, 7-2543

Earthquakes

- in Japan, 2-568
- Questions about
- How does an earthquake register itself on a machine? 14-5219-20
- If the earth is a ball, why does an earthquake shake only part of it? 18-6554
- What makes the earth quake? 5-1811

Pictures

- in Japan, 1923, 2-573

Earthworms

- life history of, 19-7143-47

Pictures, 19-7143

Earwigs, insects, 17-6070

- Pictures (in color) facing 18-6720

Easel, how to make, 4-1293

East Cape, named by Captain Cook, 8-2984

East India Company

- became ruler of Bengal, 8-2828
- gave up power, after mutiny, 7-2299
- ships of, 11-3918

East Indies. Archipelago lying between Asia and Australia, the greater part belonging to Holland. The Dutch East Indies include Sumatra, Java, Celebes, the Moluccas and parts of Borneo, Timor and New Guinea, and have altogether an area of 733,642 square miles. lost continent, 8-2717-18

East Jersey, American colony, 2-552

See also Jersey

East of the Sun and West of the Moon, story by Kay Neilsen, 5-1845-49

Easter, variation of date, 6-2094

- Question about. How is the date of Easter fixed? 16-5959

Easter eggs, how to make, 10-3505

Easter Island, 9-3298

Eastern Empire, see Byzantine empire

Eastern literature, see Oriental literature

Eastman, George, discoveries in photography, 18-6594

Eating, importance of chewing, 6-1932

See also Food

Eaton, Wyatt, Canadian painter, 10-3702

Eberle, Abastenia St. Leger, American sculptor, 14-4940

Ebernberg, castle, legend of, 18-6504

Ebony, wood, how to know, 16-5982

Ebro. Only large Spanish river flowing into the Mediterranean. Rising in the Cantabrian Mountains, it enters the sea near Tortosa, passing Logroño, Tudela and Saragossa, 440 miles.

Ecce homo. Latin for "Behold the man." The expression used by Pilate when Christ appeared before the mob; also the title of a book by Sir J. R. Seeley and of famous paintings by Correggio and by Guido Reni.

Ecclesiastical architecture, see Church architecture

Echidna, egg-laying mammal, 7-2594-95

Pictures, 7-2591

Echinoderms, group of marine animals, 19-7069

Echo, character in mythology, 9-3237

Echo, reflected sound, 14-5224

in Mammoth Cave, 4-1302, 1304

- question about, and answer, game, 8-2742, 2881

Question about. What makes an echo? 12-4504

Eclipses, how calculated, 16-5844

in 1925, description, 9-3170

map showing paths, 16-5843

- Question about. How can we foretell an eclipse of the sun? 16-5844

Pictures, sun in eclipse, 9-3170, 3172

Economics, study of, 14-5243

* Co-operation, 18-6485-87

* Distribution of wealth, 17-6091-94

* How wealth is created, 15-5357-60

* Money and why we use it, 16-5679-82

* Spending and saving, 17-6359-62

* Trade between nations, 15-5589-91

* Value, supply and demand, 16-5933-36

* Wealth and what it is, 14-5243-46

For list of main articles, see 20-7597-98

Ecuador. Equatorial republic of South America; capital, Quito. It lies among the Andes, and contains some of their highest peaks, notably Chimborazo and Cotopaxi, the highest volcano. Cotton, cocoa, indiarubber, coffee, tobacco and medicinal plants are exported, chiefly through the port of Guayaquil.

description, 19-6976-78

was joined to Colombia, 19-6976

Pictures, 19-6977

Eddas, ancient literature of Iceland, 19-7009-10

Edentates, animals without efficient teeth, 7-2393-2400

Edessa, during Crusades, 7-2586-88

Edgar, king of England, 4-1436

fleet of, 11-3916

Picture, in boat with vassal kings, 8-2843

Edgar, Sir James, see Poetry Index for poem and note

Edgar, Pelham, Canadian historian, 15-5368

Edgeworth, Lady, heroism of, 8-2708

Edgeworth, Maria, author, 6-2257; 11-3894

Picture, portrait, 6-2255

Eddy, Mrs. Mary Baker, founder of Christian Science, 14-5269-70

Picture, portrait, 14-5266

Edict of Nantes, 1598. Religious freedom in France established. Huguenots were given equal political rights with Catholics.

Edinburgh. Capital of Scotland, on the Firth of Forth. An important commercial and educational centre, it is one of the finest and most historic places in Great Britain, among its many famous buildings being the castle, Holyrood Palace, the Tolbooth, the cathedrals of St. Giles and St. Mary, and John Knox's house. The university, founded in 1583, has a famous medical school. It now includes the port of Leith on the Firth of Forth.

founding of, 4-1430

Picture, Princess Street (gravure), 7-2302

Ediphone, see Dictaphone

Edison, Thomas Alva, American inventor

* life and inventions, 17-6133-36

inventions

electric light, 3-994; 16-5938

kinetoscope, 18-6594

GENERAL INDEX

- Edison, Thomas Alva**—inventions (*continued*)
 storage battery, 16-5678
 talking machine, 1-262
Pictures
 portrait, 17-6132, 6243; 19-7058
 portrait, with parents, 15-5615
 with his first talking machine, 1-262
Edison batteries, description, 16-5678
Edition de luxe. French for a luxurious edition of a book.
Edmonton, Alberta, great fur market, 12-4342
Education
 * Men who gave us schools, 14-5247-54
 Canada, 4-1486
 French Canadian, 8-2950-51
 influence of United Empire Loyalists, 14-5104
 public schools established, 4-1486
 England
 free education developed, 19th century, 7-2293
 under Alfred the Great, 4-1434
 France, 11-3821, 3824
 Germany, 12-4172
 Indians, 19-7238-42
 Ireland, early church schools, 8-2930
 medical, in Middle Ages, 8-2724
 Philippines, 10-3594
 Poland, before partition, 13-4682
 Spain, 14-5048
 Spartan, 3-1074
 United States, 9-3220
 * Colleges and universities, 12-4307-10
 and Horace Mann, 14-5254
 colonial period, 3-966, 970
 of girls, before modern era, 14-5268
 Southern states, 14-4890
Pictures, 12-4309-18
See also Colleges and Universities
 Educational games, *see* Games, Educational
Edward the Confessor, king of England, 4-1436
Edward I, king of England, life and reign, 5-1679-80
 and Scotland, 13-4586
 death of, note with picture, 5-1681
Edward II, king of England, 5-1680
Edward III, king of England, life and reign, 5-1680, 1682
 encouraged wool industry, 15-5576
 tomb in Westminster Abbey, 5-1683
Edward IV, king of England, reign of, 5-1686
Edward V, king of England
 murdered in Tower, 1-147-49; 5-1686
Picture, in Tower, with his brother, 1-149
Edward VI, king of England, reign of, 5-1817
Picture, portrait, by Hans Holbein (gravure), 5-1823
Edward VII, king of England
 Antarctic land named for, 14-5092
 foreign policy, 7-2300
Picture, meeting princes in India, 8-2823
Edward, "the Black Prince", son of Edward III, 5-1682-83
 radio picture, 17-6364
Edwards, Jonathan, 12-4447
Picture, portrait, 12-4445
Edwin, king of England, 4-1430
Poem about. Paulinus and Edwin, by F. T. Palgrave, 6-2246
Eel-goby, fish
Picture (in color), 16-5787
Eel-pout, name for hake, 16-5780
Eels, account of, 15-5637
 conger eels, 16-5778
 egs, number of, 15-5542
Pictures
 conger eel, 16-5773; (in color) 16-5781
Egbert, first king of England, 4-1430
Egfrid, king of Northumberland, and Cuthbert, with picture, 8-2847
Egg hat, game, directions for, 4-1400
Eggleston, Edward, American historian, 13-4823
Eggs
 as food, 7-2569
 birds' eggs
 beauty of tinamou's eggs, 12-4868
 color, 3-1116
 protection of, 8-2760
 butterflies' and moths', 18-6626-27
 development of, in trout, 15-5622
 Easter eggs, how to make, 10-8505
 fishes, immense number, 15-5542
 how hatched, various reptiles', 7-2592
Eggs (continued)
 laid by mammals, 7-2591-95
 source of all life, 7-2591-92
 toy boat from eggshell, 11-4083
Questions about
 Does a hen know that chickens will come out of her eggs? 12-4281
 Is the white of the egg part of the chicken? 8-2871-72
 Why cannot we break an egg if we hold it lengthwise? 12-4400-01
 Why does a bad egg float and a good egg sink? 18-6553
 Why have the eggs of birds so many colors? 3-1116
 Why is a silver spoon blackened by egg? 18-6552
Pictures, eggs of American birds (in color), 13-4844
Eglantine, Fabre d', *see* Fabre, Philippe Francois
Eglantine, *see* Sweet briar
Egmont, Mount, New Zealand, 7-2574
Egrets, birds, account of, 11-4007
 feathers, cruelty of using, 11-4007
 protection of, 14-5019
Pictures, 11-4004; 14-5017, 5019
Egypt. Kingdom of northeast Africa, almost entirely within the Nile basin; area, 350,000 square miles; capital, Cairo. A centre of civilization for thousands of years, and later a Roman province, 30 B.C.—A.D. 639, it was conquered by Moslem invaders, and became Turkish in 1517; the British occupied it 1882-1922. Egypt depends for its prosperity on the summer flood of the Nile, which fertilizes 5,400,000 acres. Irrigation is enormously aided by the Assouan Dam and Assiout Barrage: the water stored by them enables huge crops of barley, wheat, beans, cotton and lentils to be raised. The people are engaged chiefly in agriculture, and are mostly Moslems, but there are over 854,000 Coptic Christians and about 200,000 Europeans. Antiquities abound, notably the Pyramids and the ruins of ancient Thebes near Luxor. Alexandria, Port Said, Tanta, Assiout, Zagazig, Suez and Damietta are the chief towns.
 climate, influence on architecture, 14-5210
 huts of Egyptians, 5-1657
 irrigation long practiced, by simple method, 7-2543
Pictures
 Assouan dam, 7-2553
 cotton-carrying, 14-5169
 wool-carrying on Nile, 15-5574
Egypt, Ancient
 * history, 3-807-21
 conquest by Assyria, 2-656
 agriculture and irrigation, 3-808
 architecture, *see* Architecture, Egyptian
 art, *see* Art, Egyptian
 Hebrews in, 3-815-16, 818
 horses of, 6-2014
 immortality, belief in, 3-809-10, 814
 leather, use of, 5-1549
 literature, 3-814; 15-5463
 medicine and surgery, 8-2722
 models showing daily life, 3-810
 mummies, 3-812
 musical instruments, 13-4594
 use of barn, 5-1795
 obelisks, 3-816
 pottery industry, 5-1662
 pyramids, 3-808-09; 14-5211
 religion, 1-290; 3-810, 812, 814; 11-3875
 worshiped Nile River, 7-2538
 ships and boats, 11-3910-11
 sphinx, 3-815; 11-3875
 temples, description, 14-5211-12
 time, how reckoned, 11-4132
 tombs, 1-290-91; 3-808-10, 815; 14-5211
 wall paintings, 1-291-92; 3-818
 writing, 10-3546
 on papyrus and parchment, 10-3548, 3550
Question about. Why did the Egyptians use straw for their bricks? 12-4505
Pictures, 3-807-21
 boat collecting wool, 15-5574
 Egyptian potter, 5-1663
 from Book of the Dead, 15-5459
 linen from mummy, 9-3319
 models of boats and other objects, 3-807, 809; 11-3911

GENERAL INDEX

Egypt, Ancient—*Pictures (continued)*

mummy picture, 2-452
 Nile gods: bas-relief from temple, 11-3873
 pyramids, 3-811, 819; (gravure), 7-2606;
 14-5214
 sculptures (gravure), 11-3877-79
 sphinx, 1-352; 3-819; (gravure), 11-3878
 temples, 3-813; (gravure), 14-5213-16
 Tutankhamen, relics (gravure), 3-frontis.
 wall paintings, 1-289; 3-820-21; (in color),
 1-293-95

Ehrlich, Paul, German physiologist
 discovered salvarsan, 15-5492
Picture, portrait, 15-5481

Eiders, ducks, 11-3890

Pictures (in color)
 king eider duck, 12-4370
 northern eider duck, 8-2897

Eidophone, definition, 10-3554

how to make, 17-6145

Eielson, Carl B., Alaskan aviator, 1-184

Eiffel Tower, Paris, height, 18-6556

Picture, 17-6234

Einstein, Albert

theories of light, 16-5808-09

theory of relativity, 14-5181

Eira, ship, in arctic exploration, 13-4713

Ekaterinburg. Russian mining centre in the
 Urals, with iron and copper industries and two
 cathedrals. Tsar Nicholas II and the royal
 family are said to have been killed there in
 1918.

Elaine, of Astolat, story of, 16-5823-24

Eland, animal, 4-1443

Picture, 4-1442

Elasmosaurus, prehistoric animal, 5-1660

Elba. Italian island off the coast of Tuscany;
 area, 90 square miles; capital, Porto Ferrajo.
 Napoleon's retirement in, 6-2207

Elbe. German river rising in Bohemia and
 flowing into the North Sea. Navigable for
 most of its course, it passes Dresden, Meissen,
 Magdeburg, Hamburg, Altona and Cuxhaven,
 and has an immense trade. The Moldau, Eger,
 Havel and Saale are its tributaries, and its basin
 covers 57,000 square miles. 725 miles.

Elberfeld. German textile, dyeing, and iron-
 and steel-making centre in Rhenish Prussia. It
 is connected with Barmen by a hanging railway.

Elder, Mrs. Lilla T., *see* Poetry Index for poems
 and notes

Elder, Swamp, shrub, 13-4780, 4782

Elder tree, account of, 12-4384

marsh elder, 14-5161-62

things to make from branch of, 9-3254

Pictures

fruit of (in color), 11-4025

marsh elder, 14-5161

tree and blossom, 12-4385

El Djem, Tunis

Picture, Roman Colosseum (gravure), 15-5353

El Dorado. Literally "the gilded," an imagi-
 nary city or district abounding in gold, sup-
 posed by the Spaniards of the 16th century to be
 in South America.

Eleanor of Castile, wife of Edward I of England
 memorials, Eleanor crosses, 5-1680; 16-5971
 saved husband's life, 5-1679

Picture, Queen Eleanor's cross, Geddington
 (gravure), 7-2303

Election. The choosing by vote to fill an office
 or to membership in a society, as by ballot, up-
 lifted hands, or by word of mouth. In law, the
 choice of an alternative course.

Election Day, 6-2093; 20-7565

Electoral College. In the United States the body
 of presidential electors of a state, also the whole
 body of presidential electors composed of the
 electoral colleges of the several states.

Electric batteries, discovery, 16-5671

first Voltaic cell, 4-1251

storage batteries, 16-5676-78

varieties of, and explanation, 16-5672-73

Pictures, various types, with explanation,
 16-5664-68

Electric bells

how constructed, 16-5798, 5800

Picture, with explanation, 16-5801

Electric dynamo, 4-1252

Electric elevator, description, with diagram,
 4-1217-19

Electric fish, gives electric shocks, 4-1243;

16-5665

Electric furnaces

account of, and uses, 16-5944, 5946-48

Picture, with explanation, 16-5947

Electric generators

* account of, 16-5673-74

discovery by Faraday, 4-1252

explanation, with diagrams, 16-5667

in automobile, 19-7032

Pictures, 10-3681; 16-5665, 5668, 5806; 17-6367

Electric lamps

arc lamp, 16-5937-38

description, 3-994

how made, 16-5939

in moving-picture studios, 18-6597-98

kinds of, 16-5937-40

use in diving, 12-4187

See also Electric lighting

Question about. What makes the glow in an

electric light? 5-1608

Picture, diagram showing how light is pro-

duced, 16-5939

Electric lighting

* history of invention, and explanation, 3-993-94

how to fix in cellar, 6-2167

how to repair extension cord, 6-2045

Electric locomotives, *see* Locomotives, Electric

Electric machinery, first machine invented by

Guericke, 4-1244

Electric measurements, 16-5674-75

Electric meters, 16-5675

Electric power, in U. S., 9-3212; 15-5430

Electric power distribution, 16-5673-74

transmission, 16-5675

Electric ray, *see* Torpedo, fish

Electric shock, treatment for, 16-5981

Electric sun, 16-5948

Electric switchboard

Picture, with explanation, 16-5669

Electric transmission, *see* Electric power distri-

bution

Electricity

* Electric light and heat, 16-5937-48

* Men who found electricity, 4-1243-54

* Story of electricity, 16-5665-78

* What electricity can do, 16-5797-5806

conductors of, Gray's experiments, 4-1246

currents, 4-1246, 1248

discharges of, in thunderstorm, 16-5670

Edison's inventions, 17-6133-36

electric waves, *see* Hertzian waves

experiments to try at home, 5-1773-74

first manufacture by chemical action, 4-1251

fog dispersal, connection with, 3-981

history of study of, 16-5665-73

how produced by water power, 15-5429-30

in raindrops, 8-2924

in the atom, 12-4290-92

name, derivation, 4-1244

negative, 4-1246

how generated, 5-1773

nerves' response to, 13-4596

positive, 4-1246

how generated, 5-1773

relation to light and heat, 17-6080-81

stimulates sense of smell, 11-3956

uses on ships, 12-4416, 4421

See also Telegraph; Telephone; *also* headings

beginning with Electric

For list of main articles, *see* 20-7632

Questions about

Does electricity affect the growth of plants?

7-2609

What is meant by a fuse in talking about

electricity? 6-2250

Electrochemistry

electric batteries, 16-5671-73

storage batteries, 16-5676-78

Electromagnetic theory

stated by Clerk Maxwell, 4-1253

Electromagnetic waves, *see* Radio waves

Electromagnetism, 16-5671-74

Henry's quantity magnetism, 4-1252

Oersted's discoveries in, 4-1251

Sturgeon's invention, 4-1253

use in industries, 16-5796-5802

Electromagnets

* description and uses, 16-5797-5802

improved by Joseph Henry, 17-6238

Pictures, 16-5796, 5799

Electrons

atoms formed of, 12-4289-90

discovery of, 12-4290

by Sir James Thomson, 4-1254

GENERAL INDEX

Electrons (continued)

motion of, 12-4292
 movement in atom, 16-5808-09
 relation to ether, 8-2874
 relation to light, 16-5808-09
 relation to matter, 12-4159
 theories about, 13-4666-68
Electroplating, process, explanation and use, 4-1308, 1311; 16-5802, 5804
Pictures, 4-1308, 1311
Electroscope, detects electricity, 16-5670
 directions for making, 5-1774
Electrotyping, account of, 9-3390
Elegy, definition, 1-223
Elements, with their chemical symbols and atomic weights

Aluminium	Al	27.1	Molybdenum	Mo	96
Antimony	Sb	120.2	Neodymium	Nd	144.3
Argon	Ar	39.9	Neon	Ne	20.2
Arsenic	As	74.96	Neoytterbium		
Barium	Ba	137.37	(see Ytterbium)		
Beryllium or			Nickel	Ni	58.68
Glucinum	Be	9.1	Niton	Nt	222.4
Bismuth	Bi	208	Nitrogen	N	14.008
Boron	B	10.9	Osmium	Os	190.9
Bromine	Br	79.92	Oxygen	O	16
Cadmium	Cd	112.4	Palladium	Pd	106.7
Cæsium	Cs	132.81	Phosphorus	P	31.04
Calcium	Ca	40.07	Platinum	Pt	195.2
Carbon	C	12	Potassium	K	39.1
Cerium	Ce	140.25	Praseo-		
Chlorine	Cl	35.46	dymium	Pr	140.9
Chromium	Cr	52	Radium	Ra	226
Cobalt	Co	58.97	Rhodium	Rh	102.9
Columbium	Cb	93.1	Rubidium	Rb	85.45
Copper	Cu	63.57	Ruthenium	Ru	101.7
Dysprosium	Dy	162.5	Samarium	Sa	150.4
Erbium	Er	167.7	Scandium	Sc	44.1
Europium	Eu	152	Selenium	Se	79.2
Fluorine	F	19	Silicon	Si	28.3
Gadolinium	Gd	157.3	Silver	Ag	107.88
Gallium	Ga	70.1	Sodium	Na	23
Germanium	Ge	72.5	Strontium	Sr	87.63
Glucinum			Sulphur	S	32.06
(see Beryllium)			Tantalum	Ta	181.5
Gold	Au	197.2	Tellurion	Te	127.5
Hafnium	Ha	—	Terbium	Tr	159.2
Helium	He	4	Thallium	Tl	204
Holmium	Ho	163.5	Thorium	Th	232.15
Hydrogen	H	1.008	Thulium	Tm	168.5
Indium	In	114.8	Tin	Sn	118.7
Iodine	I	126.92	Titanium	Ti	48.1
Iridium	Ir	193.1	Tungsten	W	184
Iron	Fe	55.84	Uranium	U	238.2
Krypton	Kr	82.92	Vanadium	V	51
Lanthanum	La	139	Xenon	X	130.2
Lead	Pb	207.2	Ytterbium		
Lithium	Li	6.94	or Neoyt-		
Lutecium	Lu	175	terbium	Yb	173.5
Magnesium	Mg	24.32	Yttrium	Y	89.33
Manganese	Mn	54.93	Zinc	Zn	65.37
Mercury	Hg	200.6	Zirconium	Zr	90.6

* account of, 12-4289-92, 4403
 classification, 12-4291-92
 different lights, or spectra, of atoms, 16-5812
 five necessary to life, 2-664
 kinds not found on earth, 14-5084
 relation to hydrogen and helium, 1-20
 vary in tendency to combine, 12-4405
Elephant Island, 14-5101

Elephants

* account of, 6-2139-47
 training of, 8-2715
 use by Carthage in war, 4-1194
Question about: Has an elephant a bone in its trunk? 7-2361
Pictures, 4-1195; 6-2139-47
 drinking in the Ganges, 8-2827
 Gwalior state elephants (graveure), 8-2836
 showing skeleton, 7-2361
 working in rice field, 5-1857

Eleusis, temple of Ceres, 9-3227

Elevators

* How elevators go up and down, 4-1215-19
 invention of, 19-7212
 safety devices, 4-1218
Pictures, 4-1214-19
 elevators in the Middle Ages, 4-1216

Elevators, Grain

Pictures, 1-377; 8-2802
 in Salina, Kansas, 17-6039
 Rumanian, at Braila, 14-4928

Elgar, Sir Edward, English musical composer, 19-6926

Picture, portrait, 19-6912

Elgin, James Bruce, 8th earl of, governor-general of Canada, 4-1486, 1488

Elgin, Thomas Bruce, 7th earl of, took statues from Parthenon, 8-3009; 12-4222

Elgin marbles, statues in British Museum, 8-3009; 12-4222

El Greco, see Greco, El

Elijah. An Israelitish prophet whose dramatic story is told in the Books of Kings. He fearlessly rebuked the evil doings of King Ahab, always asserting the superiority of Jehovah to the other gods. He held no official position, sometimes communing in the desert alone, sometimes appearing at court. Finally he experienced translation, being carried on a whirlwind to heaven.

Eliot, George, pen name of Mary Ann Evans
 writings of, 11-3896

Pictures, portrait, 11-3891

portrait, with father, 15-5619

Eliot, Henrietta Robins, see Poetry Index for poem and note

Eliot, John, missionary to Indians, 18-6634-36

Picture, preaching to the Indians, 18-6635

Eliot, Sir John

defiance of Charles I, 6-1976; 11-3848-49

Picture, portrait, 11-3845

Elizabeth, queen of England, 5-1817-20

and Mary Queen of Scots, 12-4214

and Sir Walter Raleigh, 14-4966-67

sardonyx ring and Earl of Essex, 19-7229-30

sent ambassador to India, 8-2823

Pictures

portrait by Zuccherro (graveure), 5-1821

portrait, with parents, 15-5617

scenes in her life (graveure), 5-1824

Elizabeth, sister of Louis XVI of France, and Marie Antoinette, 6-2010

Elizabeth Christine, queen of Prussia, 11-4046

Elizabeth of Hungary, St. Born at Presburg, Hungary, 1207, daughter of King Andrew II of Hungary and a lover of the poor from childhood. She died in 1231, at the age of 24, from hardship, after living in a dilapidated hut and devoting her life to caring for the poor.

Elizabethan age, England

broadening of thought, 2-722

dramatists, 2-721-22

English literature in, 3-1117-25

music of, 16-5743-44

Elizabethan sea-dogs, * 14-4959-71

Elk, animal, 4-1448

American, or wapiti, 4-1446

incorrectly called moose, 4-1448

Picture, 4-1443

Elleck, fish. *Picture* (in color), 16-5781

Ellerton, John, hymns of, 12-4437

See also Poetry Index for poem and note

Elliott, Charles Loring, American painter, 9-3330

Picture, Portrait of Mrs. James C. Griswold,

9-3329

Elliott, Charlotte, hymn-writer, 12-4437

Elliott, Ebenezer, "Corn Law rhymers," 3-1135; 12-4229

Picture, portrait, 12-4227

Ellis Island, in New York Harbor, since 1891 U. S. Immigrant station.

Ellsworth, Lincoln. American engineer and polar explorer. Born, 1881. After graduation from Columbia University went on important geological and exploring expeditions in Canada, Yucatan and the Andes. In 1925 accompanied Captain Roald Amundsen on his unsuccessful attempt to reach the North Pole by airplane. In 1926 was one of the leaders of the Amundsen-Ellsworth-Noble expedition which crossed the Pole from Spitzbergen to Alaska by the airship Norge in May, 1926. Ellsworth financed, in large part, these last two expeditions.

Elm trees

description, and varieties, 12-4252

flowers and fruit, 17-6273-74

note on, 12-4516

Pictures, 12-4252, 4516

English, fruit of (in color), 11-4028

Elsie Series of books, note on, 14-5015

Elsinore, or **Helsingör**. Danish port on the Sound, in which Shakespeare lays the scene of Hamlet.

GENERAL INDEX

- Ely.** City of Cambridgeshire, England. The splendid cathedral, begun about 1083, embraces every style of architecture from Early Norman to Late Perpendicular.
- Elyot, Sir Thomas,** stories from his book *Gouernour*, 8-2963
- Elysium,** account of, 9-3237
- Emancipation Act,** 1829. Act which freed Roman Catholics from civil and religious disabilities in the United Kingdom.
- Emancipation of the Slaves.** Act of August, 28, 1833, by which slavery was abolished throughout the British colonies.
- Emancipation Proclamation** of Lincoln, terms of, 7-2436
Picture. Lincoln and Cabinet discussing Emancipation Proclamation, 7-2426
- Embargo.** As applied to shipping, a government decree forbidding the entry or departure of commerce at ports, if on enemy's ships a hostile embargo, if on domestic a civil embargo. Applied generally, a prohibition imposed by law on commerce in any branch.
- Embroidery**
 directions
 huckaback table-cover, 14-5118
 sampler, 19-7081-82
 table-cover in appliqué work, 16-5891-92
 patterns, Hungarian, 10-3628
Picture. ancient Egyptian and Arabian, 9-3319
- Embryo.** A young organism in the early stages of development. In botany, the germ which forms within the ovule on fertilization and which becomes the principal part of the seed; in physiology, the unborn young up to the time of birth.
- Embryology.** The science which deals with the formation and development of embryos.
- Emelye, Romance of the Lady,** by Chaucer, 13-4771
- Emerald,** account of, 19-7228
 "evening emerald," name for peridot, 19-7230
Picture (in color) facing 19-7225
- Emergencies,** *see* First aid
- Emeritus.** Latin for "retired"; generally applied to a professor.
- Emerson, Ralph Waldo,** life and writings, 13-4630
See also Poetry Index for poems and notes
Pictures
 portrait, by Tobin, 13-4630
 portrait, with parents, 15-5616
 home at Concord, Mass., 13-4631
- Emery.** A variety of corundum, containing chiefly alumina and oxid of iron. It occurs both massive and disseminated, being found in Asia Minor as lumps in crystalline limestone. Most of the emery used in America comes from Turkey, but emery occurs in Massachusetts, New York, North Carolina and Georgia. On account of its great hardness it is used for grinding, cutting and polishing.
- Emigration.** The departure from the place of abode for residence in another. Immigration is the same but viewed from the point of view of the country which receives the new-comer, or immigrant. In the United States admission is regulated by quota from each country (2 per cent of the number of persons born in that country who were residents of continental United States as shown by the 1890 Census). In Canada it is by selection.
- Emilius, Prince,** of Hesse Darmstadt, story about, 4-1256
- Emin Pasha (Eduard Schnitzer),** African explorer, 2-470
Picture, portrait, 2-465
- Emmet, Robert** (1778-1803). Irish patriot and orator, a leader of the United Irishmen who in 1803 headed an unsuccessful rising in Dublin. Escaped to the mountains, but returning to take leave of his fiancée, he was arrested, tried for treason and hanged.
- Emmett, Daniel Decatur,** song-writer, 18-6511-12
- Emotions**
 * account of, 12-4441-44
 effect on body through suprarenal glands, 9-3223
 effect on character, 12-4441
 relation to instincts, 12-4441-43
 relation to poetry, 4-1379
Question about: Why do we become excited when we are pleased? 17-6179
- Empress of Britain,** ship, lounge
Picture, 12-4428
- Empress of Scotland,** ship. *Picture,* 12-4414
- Ems.** German river rising in the Teutoburger Wald and flowing into the Dollart near Emden. 210 miles.
- Emus,** birds, 13-4657
Picture, 13-4654
- En passant.** French phrase meaning "in passing"; by the way; also a term used in chess.
- Enamel,** of tooth, 6-1930
- Enameling** in Babylonia and Persia, 1-292, 297
- Enchanted Cave** of **Richmond Hill,** legend, 17-6324
- Enchanted lyre,** explanation of, 17-6237
- Enchanted Mesa,** Arizona
Picture, 9-3027
- Encke's comet,** 10-2671
- Enclosure acts,** England, effect on agriculture and laborers, 7-2294
- Encyclopedias**
 early ones, by Chinese, 2-429, 432
 Roger Bacon's, 13th century, 5-1572
Question about: What does encyclopedia mean? 1-74
- Encyclopedists,** group of French writers, 18-6715
- Endeavor,** ship of Captain Cook, 7-2571
- Endér, Eduard,** artist
Picture, Shakespeare reciting before Queen Elizabeth, 2-725
- Enderby brothers,** and antarctic exploration, 14-5090
- Endicott, John,** Puritan leader, 2-548
- Endive,** vegetable food, 7-2616
- Energy**
 radiant, given to earth by sun, 8-2664
 usefulness may be lost, 15-5571
- Energy, Conservation of,** *see* Conservation of energy
- Engadine.** Valley in the Swiss canton of Grisons, traversed by the Inn. Here are St. Moritz and Pontresina.
- Engine, Traction,** *see* Traction engine
- Engineering**
 For list of main articles, *see* 20-7629-32
- Engines,** efficiency of, as to work vs. heat produced, 15-5570-71
 automobile, 19-7029-32
 internal combustion, 17-6406
 reciprocating, 12-4416
Question about: Why does a railway engine puff? 15-5366
Pictures
 oil-electric, 16-5678
 on shipboard, 12-4424-26
 reciprocating on ship, 17-6405
See also Diesel engines; Gas and oil engines; Steam engines; Locomotives
- England.** Southern and largest country of Great Britain; area, 50,900 square miles; capital, London. Divided from Scotland by the Cheviot Hills, it contains in the north the Lake District, the Pennine Chain, and the Cumbrian Mountains, with Scawfell Pike (3,210 feet); the centre and east are generally flat, and the south largely undulating downland. The largest rivers are the Thames, Severn, Trent, Great Ouse and Yorkshire Ouse, but the Tyne, Tees, Lower Avon and Mersey are among the most important. The chief industrial areas are in the North and North Midlands, where coal is found over a large area. Northumberland and Durham are famous for their shipbuilding and chemical trades; Lancashire for cottons and engineering; Yorkshire for woollens, worsteds, iron and steel; Cheshire for salt; and the Midlands for hardware, pottery, hosiery and lace. London, however, is easily the most important commercial centre, while agriculture and stock-raising flourish almost everywhere. There are valuable North Sea fisheries. The greatest industrial centres are Birmingham, Manchester, Sheffield, Leeds; and Bradford, Liverpool, Bristol, Hull, Newcastle-on-Tyne, Portsmouth, Plymouth, Southampton, Sunderland and Birkhead are famous as ports.
 agriculture, *see* Agriculture—England
 architecture, *see* Architecture. English
 army, reorganized by Lord Haldane, 7-2300
 art, *see* Architecture, English; Painting, English; Sculpture, English
 canals, 13-4786

GENERAL INDEX

England (continued)

- colonies and dependencies
 - * Outposts of empire (islands and smaller dependencies), 9-3181-91
- * African, 9-3047-58
 - South Africa, 9-3048, 3050
- American
 - compared with French, 3-777-78
 - restrictions on trade, 4-1158-59
- * Australia, the great south land, 7-2463-73
 - British Empire, extent of, 14-4959
 - founded by Elizabethans, 14-4959
 - population, 5-1605-06
 - Canada, relations with, 5-1834
 - See also Canada
- India
 - * How India became an empire, 8-2821-36
 - * India, the pearl of the East, 8-2695-2702
 - Pictures (gravure), 8-2829-36
- * Ireland, story of, 8-2929-42
 - islands in Polynesia, 9-3298
- * New Zealand, the beautiful dominion, 7-2571-79
 - relation to mother country, 7-2299
 - West Indies, 19-7099-7100, 7102-03
- commerce
 - early trade with India, 8-2824
 - with Russia, founded by Chancellor, 8-2982
- education
 - free education developed, 19th century, 7-2293
 - under Alfred the Great, 4-1434
- European continent, formerly part of, 16-5840
- flag, 19-7182
- foreign relations
 - under Charles II, 6-1980
 - under Cromwell, 11-3847
- fruit, 6-2057
- furniture, 18-6768-72
- geologic history in Cretaceous period, 5-1659
- government
 - king's power lessened under Hanoverians, 6-2097-98
 - oppressive laws, early 19th century, 7-2298
 - prime ministers, growing power of, 6-2097-98
 - vote granted to various classes, 19th century, 7-2298
- See also England—Parliament
- history (arranged chronologically)
 - early period
 - * earliest times to end of Roman period, 4-1315-24
 - * after Roman occupation to William the Conqueror, 11th century, 4-1429-39
 - Norman Conquest to Tudor period
 - * Norman Conquest through reign of Henry III, 5-1565-72
 - * Edward I to Henry VII, 5-1679-86
 - peasant uprising under Wat Tyler, 5-1683
 - war with Wales under Edward I, 5-1679-80
 - Wars of the Roses, 5-1686
 - wars with France, 14th and 15th centuries, 5-1682-84; 10-3433-34
 - wars with Scotland, 13th and 14th centuries, 5-1680
 - Tudor period
 - * Henry VII to Elizabeth, 5-1813-20
 - * Elizabethan mariners, 14-4959-71
 - Stuart period
 - * James I to William and Mary, 6-1973-81
 - * Civil War, Cromwell's time, 6-1976-78; 11-3846-52
 - Jacobite rebellion, 6-2098
 - and Prince Charlie, 15-5639-44
 - John Milton and English history, 4-1238
 - 18th century through Napoleonic Wars
 - * From the Stuarts to Napoleon, 6-2097-2103
 - French Revolution, effect of, 6-2101-02
 - wars with American colonies, 6-2100-01
 - See also Revolution, American
 - wars with Napoleon, 6-2102-03; 2201-08
 - * 19th century, 7-2293-2300
 - War of 1812, with U. S., 5-1703-06
 - Boer War, 7-2299-2300
 - Crimean War, 7-2299
 - For list of main articles, see 20-7589
 - Pictures, about history, see articles above
 - marked with stars
- Industries
 - change from agriculture to manufactures, 7-2293-96
 - geographical division of labor, 14-5245
 - in Napoleonic Wars, 6-2103
 - in Stuart period, 6-1980

England—industries (continued)

- wool industry, 15-5576
 - established by Edward III, 5-1683
- * Ireland, relations with, 8-2932-40
- Labor party, 7-2300
- legends
 - of places, 17-6324
 - See also Arthur, King
- Magna Carta granted, 5-1571
- manufactures, development in 19th century, 7-2293-96
- map, when joined to Europe, 16-5840
- name, meaning, 2-461
- navy
 - beginning, under Alfred, 4-1432
 - customs, 4-1354
 - 18th-19th centuries, 11-3918-19
 - reorganized by Admiral Fisher, 7-2300
 - under Alfred and Edgar, 11-3914, 3916
- painting, see Painting, English
- Parliament
 - and Charles I, 6-1976
 - electoral reform, early 19th century, 7-2293, 2298
 - first meeting, 5-1572
 - presiding officers, 11-4135
 - Samuel Johnson, reporter in, 5-1870
 - Pictures, Parliament dissolved by Cromwell, 6-1977, 1979
- patriotic songs, see England—songs, patriotic
- poetry, see English poetry
- population of Great Britain, 5-1605-06
- religion
 - Christianity introduced, Roman period, 4-1322
 - Christianity preached, Anglo-Saxon period, 4-1430
 - history of church to King John, 8-2844-50
 - Roman wall, with pictures, 4-1318-19, 1323
 - sculpture, see Sculpture, English
 - slavery in, 8-2845
 - social conditions
 - 18th century, 6-2101-02
 - 19th century, 7-2293-98
 - songs and song-writers, 10-3606
 - songs, patriotic
 - A Hymn of Empire, by F. G. Scott, 10-3483
 - England, My England, by W. E. Henley, 7-2365
 - God Save the King, by John Bull, 18-6651
 - Rule, Britannia! by James Thomson, 2-486
 - Ye Mariners of England, by Thomas Campbell, 2-609
 - tariff, see Tariff in England
 - Wars, see England—history
 - wealth, growth in 19th century, 7-2296
 - wool production, 15-5576
 - See also British Isles
- Poems about
 - Homes of England, by Mrs. Felicia Hemans, 3-845
 - Land of Hope and Glory, by A. C. Benson, 6-2150
 - Recessional, by Rudyard Kipling, 19-6872
 - Who Dies if England Live? by Rudyard Kipling, 15-5422
- See also England—songs, patriotic
- For list of main articles, see 20-7589-92
- Questions about
 - What does the name England mean? 2-461
 - Why did the ancients call England Albion? 16-5741
- Pictures
 - Old World England in moat and castle, 7-2297
 - * various scenes (gravure), 7-2301-04
 - See also pictures in English historical articles
- English, Thomas Dunn, wrote Ben Bolt, 18-6514
- English. The people of a composite race who inhabit England. The prevailing race is long-headed, descended from the Nordic Saxons and their kindred peoples from Northern Europe. The short dark Mediterranean Iberians and the tall round-headed Celtic descendants of the Bronze Age have been absorbed by these Anglo-Saxons. The amalgamation of the stolid, just, sympathetic, haughty and dominating Saxon and the quick-witted, imaginative, impulsive and mercurial Celt has produced a people of over 120 millions, who inhabit the United States of America, Canada, Australia, New Zealand and South Africa, as well as their English homeland.

GENERAL INDEX

- English architecture**, *see* Architecture, English
- English Channel**, Narrow sea dividing England and France, 350 miles long, it is 100 miles wide at its Atlantic entrance, but narrows to 20 miles at the Strait of Dover.
- English Chronicle**, *see* Anglo-Saxon Chronicle
- English fiction**, *see* Fiction
- English history**, *see* England—history
- English language**
- * How the first English books fixed the language, 1-299-306
 - influence of invention of printing, 9-3384
 - influence of Norman Conquest, 5-1565
 - used for laws first under Henry III, 5-1572
- Questions about*
- How many English words do we use? 1-75
 - How many words has the English language? 16-5961
- English painting**, *see* Painting, British
- English Pale**, in Ireland, when established, 5-1683
- English poetry**
- and love of nature, 4-1513
 - history, in chronological order
 - * Earliest English poetry, 1-321
 - * Great writers of Shakespeare's time, 3-1117-25
 - Shakespeare's sonnets, 2-722-24
 - * John Milton, 4-1235-42
 - * classical period, 17th-18th centuries, 4-1357-59
 - * nature poets of the 18th century, 6-2027-30
 - * Master of the people's songs (Burns), 6-2135-38
 - * Byron, Scott, Shelley and Keats, 7-2489-93
 - * Wordsworth and his friends, 7-2353-58
 - * Tennyson, 10-3469-72
 - * Story of the Brownings, 10-3687-91
 - * Victorian and Georgian poets, 12-4227-34
 - * Writers of the hymns, 12-4435-40
 - See also* England—songs and song-writers; Poetry
- English prose**
- critical writers, 11-4003
 - drama, early history, 2-721
 - Shakespeare's plays, 3-833-38, 983-88
 - history, in chronological order
 - * writers before Elizabethan age, 1-299-306
 - * Greatest Book in English (Bible), 2-473-76
 - * writers of Shakespeare's time, 3-1117-25
 - * Bunyan and Defoe, 4-1477-81
 - * Swift, Addison and Steele, 5-1619-22
 - * Diary-writers, 5-1727-30
 - * Johnson and his friends, 5-1867-72
 - * Tellers of Tales, 6-2253-58
 - * Scott and his stories, 7-2625-32
 - * Dickens and Thackeray, 8-2731-37
 - * essay writers, 8-2865-69
 - * Historians, 9-3201-05
 - * Carlyle and Ruskin, 9-3311-16
 - * novelists, 11-3891-99
 - * writers of our time, 11-3999-4003
 - picture-map of authors and scenes, 11-4000-01
 - style, development of, 5-1619
- English sparrow**, *see* Sparrow
- English walnuts**, account of, 6-2276
- Picture* (in color), 11-4026
- Engraving**
- in early German art, 4-1344
 - of Albrecht Dürer, 4-1345
 - of Hans Holbein, 4-1348
- Ennius, Quintus**, Roman poet, 16-5908
- Ensilage**, fodder in silo, 7-2413
- Entebbe**, British headquarters in Uganda, 9-3054
- Entre nous**, French for "between ourselves."
- Environment**, adaptation to, *see* Adaptation
- Envoy**, part of poem, 11-4030
- Eocene period**, *see* Geology—Eocene period
- Eohippus**, ancestor of horse, 6-2012-13, 2016
- Eole, William**, artist
- Pictures*, frescoes about Scotch history, 12-4207, 4211
- Eos**, goddess of the dawn, 9-3228, 3233
- Bozoön**, sea creature, 3-774
- Epacts**, meaning of, 16-5959
- Ephesus**
- Temple of Diana, 15-5344-45
 - building of, 12-4459
 - Picture*, Temple of Diana, reconstruction (gravure) 7-2608
- Epic poetry**, definition and origin, 1-215
- Epictetus**, philosopher, 2-709
- Epicurus**, An eminent Greek philosopher who is supposed to have taught a doctrine of *refined* voluptuousness. The term epicure is applied to-day to one devoted to the delights of the table.
- Epidauria**, a wood, in mythology, 9-3237
- Epidaurus**, Greece, theatre, 15-5346
- Epidemic**, Spreading widely, as an epidemic disease is one which attacks many persons at the same time.
- Epidermis**, outer layer of skin, description, 4-1416, 1418
- Epigonus**, sculptor, 12-4460
- Epimetheus**, story of, in mythology, 9-3233
- Epiphyte**, a plant growing on another, 9-3268
- Epithalamion**, poem by Spenser, 3-1120
- Epstein, Jacob**, sculptor, born in New York, working in England, 13-4858
- Equator**
- enormous rainfall at, 8-2666
 - seasons at, 8-2794
 - temperature remains same, 8-2792
- Questions about*
- Does the Equator go round faster than the Poles? 14-5222
 - Why is it hotter at the Equator than in Maine? 9-3101
- Equilibrium**, explanation of, 14-4903
- kinds, illustrated by tops, 14-4901
 - relation to centre of gravity, 14-5179-80
 - what stable equilibrium is, 7-2361
- See also* Balance
- Question about*: What do we mean by stable equilibrium? 7-2361
- Equinoxes**, meaning of, 8-2792
- Equity**, In English and American law a body of rules supplementary to common and statute law. In England the rules and doctrines of equity were incorporated into the laws of the land in 1873, and in the United States the same merging of law and equity has taken place in most states.
- Erasmus, Desiderius**, Dutch scholar, 14-5248, 5250
- Pictures*, portrait, 14-5247
 - scenes in his life, 14-5249
- Erato**, muse of love lyric, 9-3228
- Erebus**, in mythology, account of, 9-3238
- Erebus**, ship, 8-2987; 14-5090-91
- Erebus**, Mount, discovered by Sir J. C. Ross, 14-5090
- Erechtheum**, Athens, 15-5344
- caryatids of portico, 12-4222
- Pictures*, north porch (gravure), 15-5350
- south portico and caryatids, 3-1068; 12-4217
- Erfurt**, Ancient cathedral city and textile-manufacturing centre in central Germany.
- Ergot**, disease of rye, 5-1852
- Eric the Red**, founded colony in Greenland, 1-241
- Ericson, Leif**, Norse adventurer
- explorations, North American coast, 1-241; 15-5292
- Ericsson, John** (1803-89). Swedish-American engineer and inventor. He came to the United States in 1839, and for fifty years was a leading engineer.
- and ship Monitor, 7-2434
 - inventions, including screw propeller, 17-6402, 6404
- Pictures*, portraits, 7-2437; 17-6397
- Erie, Lake**, Southernmost of the Great Lakes, lying between Ontario, Canada, and the states of New York, Pennsylvania and Michigan. 9,600 square miles in extent, it is 250 miles long with an average breadth of 40 miles; it is frozen in winter between December and April, but the Welland Canal, which avoids Niagara, allows navigation between Erie and Ontario throughout the summer. Toledo, Sandusky, Cleveland, Erie, Ashtabula and Buffalo are the chief ports.
- Erie, Lake, Battle of**, 17-6331
- Erie Canal**
- * account of, 13-4881-88
 - effect of trade, 6-1914
 - new barge canal, 13-4888
- Pictures*, 13-4883-87
- Eris**, goddess of discord, 9-3234
- Eritrea**, Italian territory on the Red Sea, occupied in 1890. It exports hides, butter, palm-nuts, gold, ostrich feathers and mother-of-pearl. Its capital, Asmara, is connected by railway with the port of Massawah.

GENERAL INDEX

- Erivan.** Capital of the government of Erivan in Armenia, on the Sanga.
- Erl King,** song, how Schubert wrote music for, 19-6921
- Ermine,** animal, 3-873
Picture, 3-869
- Eros (Cupid),** god of love, 9-3228
- Erratic boulders,** definition, 6-2070
left by glaciers, 7-2316
Picture, 6-2073
- Eryngas, Sea,** see Sea-hollies
- Erzerum.** Capital of Turkish Armenia, 6,200 feet above sea-level.
- Esarhaddon,** king of Assyria, 2-656
Picture, portrait (bas-relief), 2-657
- Escalator**
Question about. What is the principle of an escalator? 11-3976
- Escholtzia.** *Picture,* flower (gravure), 19-7180
- Escorial, or Escorial,** Spanish building, 18-6500
- Eskimo dogs,** 2-717
Pictures, 2-711; 16-5735
- Eskimos**
aid in Polar exploration, 13-4708, 4710
blond, discovery by Stefansson, 13-4722
dwellings of, 5-1657
igloo, or house, description, 7-2485
* in northern Canada, description, 7-2562-69
life of, 8-2977-78
* *Pictures,* 7-2561-66
hut, tent, and group of women, 8-2981
returning from walrus hunt, 7-2557
- Esparto grass,** 8-2788
- Esquimaux,** see Eskimos
- Essays**
Essay on criticism, by Pope, 4-1359
true essay, definition, 8-2866
* writers of, English literature, 8-2865-69
- Essen.** Great German iron- and steel-making centre, headquarters in the Ruhr coal-field of the Krupp engineering works.
- Essex, Robert Devereux,** 2d earl of, and Sir Walter Raleigh, 14-4967-68
story of sardonyx ring from Queen Elizabeth, 19-7229-30
- Essex, ship,** captured Alert, 5-1704
- Essling, battle at,** 6-2206
- Esterbrook, Richard,** established first pen factory in America, 10-3550
- Estergom, Hungary,** 17-6340
- Esthonia**
account of, 18-6461
* description, 16-5860
map, 13-4685
- Etching.** From a Dutch word meaning "to feed" or "to eat." In art, the process of engraving upon glass or metal by the corroding action of acid. A plate is covered with a ground (some preparation of wax or varnish) that will resist acid. The drawing is scratched into the ground with a point; the plate is bathed in an acid which eats into the metal where exposed. When the ground has been removed the plate is inked, then wiped, and impressions are taken from it upon paper.
by Brangwyn and Muirhead Bone, 8-2860
by Rembrandt, 5-1710-11
by Whistler, 10-3450
- Eteocles,** king of Thebes, quarrel with brother, 6-2008
- "Eternal City,"** name for Rome, 2-576
- Ethelbert, St.** King of Kent, who, with his people, was converted by St. Augustine in 597. He founded the great cathedrals of Canterbury and Rochester and the Church of St. Paul in London.
Picture, portrait (in group), 2-475
- Ethelred,** king of England, 4-1436
- Ether (of space)**
* description, 13-4665-66
formation of stars in, 1-20
light-waves carried by, 12-4156-57
sound-waves not carried by, 17-6313-14
vibrations of, in sight and sound, 11-3804
Question about. What do we mean by the ether? 8-2874
- Ether, Sulphuric,** as anæsthetic, 8-2729-30
contents of, 8-2874
- Ethics.** The science of the ideal human character, dealing with such things as the nature of the highest good, and the origin and worth of the sense of duty.
- Etna, Mt.,** see *Ætna*
- Eton, English school,** founded by Henry VI, 5-1686
- Etrich, Herr,** aviator, 1-174
- Etruscans,** tribe of Italy
decline of, 4-1193-94
settlement, 4-1191-92
- Eucalyptus oil,** used as medicine, 8-2909
- Eucalyptus trees**
account of, 9-3262
adaptation to drought, 4-1281
description and value of, 8-2909
jarrah, one variety, 12-4249
Picture, blossom and leaves, 8-2909
- Euclid,** Greek mathematician, founded science of geometry, 2-701-02
Picture, portrait, 2-701
- Euclid of Megara,** Greek philosopher, pupil of Socrates, 2-702
Picture, portrait (in group), 2-704
- Eugene,** Prince of Savoy, 11-3966
- Eulachon,** fish, 16-5776
- Eulenspiegel, Till,** see Howleglass
- Euphrates River,** Asia, 2-647, 650; 18-6669
- Eurasians,** definition of, 3-1115
- Eureka,** meaning of, with story, 11-3842-43
- Euripides,** Greek dramatist, 16-5752-53
Picture, portrait, 16-5747
- Europe.** Second smallest, but most important of the continents, having well over a hundred people to the square mile. Its area is estimated at 3,885,828 square miles. The most remarkable feature of Europe is its immense length of coast-line, measuring nearly 50,000 miles, as compared with Africa's 15,000 miles; it has many inland seas and large numbers of islands. Two-thirds of its area consists of a great plain stretching across Northern Europe from the Ural Mountains to the North Sea; but in the north are the mountains of Scandinavia and in the south the great Alpine system. The Iberian, Italian and Balkan peninsulas each have their own mountain ranges. Europe is generally well watered, and has many fine rivers, notably the Volga, Danube and Rhine, which are all important waterways. A great part of its area is under cultivation, and large crops of cereals are grown, especially in Russia. Great Britain, Belgium, Germany, Spain, Austria, Sweden and the Ural Mountains have great mineral wealth; Rumania, Poland and Russia produce large quantities of petroleum. The population is fairly evenly divided between the Teutonic, Latin and Slavonic races: the Teutons include the English, Germans, Dutch, Flemings, Danes, Norwegians and Swedes; the Latins the French, Spanish, Portuguese, Walloons, Italians, Rumanians and Greeks; and the Slavs the Russians, Poles, Slovenes, Slovaks, Czechs and Serbs. The population of Ireland, Wales, Brittany and the Scottish Highlands consists largely of Celts; while on the Continent there are several non-Aryan races, including Finns, Magyars, Turks, Tartars, Bulgarians and Basques. Of the 28 European states, 11 are kingdoms and 15 republics, 2 are principalities; while Ireland is a self-governing dominion of the British Empire.
forest land in, 7-2416
history
* changes since World War, 18-6457-63
See also names of countries
literature, compared with Oriental, 15-5459
map, 18-6456
population, 5-1606
- European War,** August 4, 1914 to November 11, 1918, see World War, 1914-18
- Eurus,** southeast wind, in mythology, 9-3234
- Eurypterids,** crustaceans, 4-1175
- Eustachian tube,** air pressure in, 2-687
and the ear, 9-3308
- Euterpe,** muse of lyric poetry, 9-3228
- Euxine Sea.** *Picture,* 14-5258
- Evald, Johannes,** see Ewald
- Evangeline,** country of
Pictures, Cape Blomidon; old willows, 3-940
- Evans, Edgar,** on Scott's antarctic expedition, 14-5096
Picture, portrait, 14-5100
- Evans, Mary Ann,** see Eliot, George, pen name
- Evaporation,** definition of, 8-2921
explanation, 3-981
- Evaporator,** invention to produce fresh water from salt water, 12-4416

GENERAL INDEX

- Evelyn, John**, English author
estimate of Pepys, 5-1728
"Great Fire of London" (extract from his Diary), 8-2819
life and diary, 5-1730
quotation about holly, 12-4385
Picture
John Evelyn discovers the wood-carver, Grinling Gibbons, 5-1729
Pepys finds John Evelyn at his diary, 5-1726
- Evening primroses**, see *Primroses*
- Evening star**. One of the planets (as Venus, Jupiter or Mercury) when seen shining in the western sky after sunset.
- Evening star flower**, 18-6656
Picture, 18-6657
- Everest, Mount**
highest mountain in world, 8-2695; 18-6553
- Everglades**, swamp in Florida, note and picture, 1-156
- Evergreens**, falling of leaves, 2-510
- Everlasting**, plant, pearly everlasting, 19-6940
Picture, pearly everlasting, 19-6931
- Evidence**. In law: (a) a document or instrument by which a fact is made evident; (b) a witness—one who furnishes testimony; (c) testimony—information tending to make clear the fact in question in a trial or legal investigation.
- "Evil One,"** name for wolverine, 12-4341
- Evolution**. The theory that all species, genera, orders, classes, etc., of animals and plants now existing are derived or descended from a few simple forms of life, or even from one.
- Ewald, Carl**, Danish author, 19-7011-12
wrote fairy tales, 9-3199
Picture, portrait, 9-3193
- Ewald, Herman Frederik**, Danish novelist, 19-7011
- Ewald, Johannes**, Danish poet, 19-7011
- Ewing, Mrs. J. H. G.**, see *Poetry Index* for poem and note
- Ex cathedra**. Latin for "judicially" or "officially"; literally "from the chair."
- Ex libris**. Latin for "from the books," used in book plates and followed by the name of a person.
- Ex nihilo nihil fit**. Latin for "from nothing comes nothing."
- Ex officio**. Latin for "by virtue of one's office."
- Ex parte**. Latin for "on one side"; biased.
- Ex post facto**. Latin *ex*, from; *post*, after; *factus*, done; done afterward, or referring to a former state of facts. An *ex post facto* law is one which operates on matters which had taken place before it was passed.
- Excelsior**. Latin for "higher."
- Excise**, a tax or duty upon commodities of domestic production, levied upon their manufacture, sale or consumption. It usually taxes expenditure on luxuries, such as tobacco and spirits. Such duties were not general in the United States before the Civil War.
- Excitement**
Question about. Why do we become excited when we are pleased? 17-6179
- Exempli gratia**. Latin for "for example"; frequently written e.g.
- Exercises, Physical**, home exercises, 15-5332
- Exeter**. Capital of Devonshire, England. Still partly surrounded by walls, it has a medieval guildhall.
cathedral, 16-5971
Picture, cathedral (gravure) 16-5975
- Exmoor**. Moorland tableland in Devonshire and Somerset in which the Exe rises. The scene of Blackmore's novel *Lorna Doone* is laid in it. Its highest point is Dunkery Beacon, 1,707 feet.
- Experiments**
botanical, 2-616
electrical, to try at home, 5-1773-74
fairy fountain, 2-627
how to make a miniature whirlwind, 4-1398
on eye, to show need of blood, 5-1811
on overtones from a piano, 19-6852-53
on potatoes, 3-1154
to show atmospheric pressure, 18-6784
to show how gas is made, 2-635
with air, 19-7083-84
with bread and yeast, 2-626
with water, 2-622-23; 19-7083-84
wooden balls that twist and turn, 7-2380
See also *Tricks*
- Expiration**, in breathing, 4-1329-30
- Explorers**
* Explorers of Africa, 2-465-71
* Explorers of North America, 1-241-54
* Men of the Northern Sea-gates, 8-2977-89
* Men who made the world known, 1-83-90
* Men who found Australia, 3-859
* North Pole men, 13-4707
* South Pole men, 14-5089
- Explosive**. A substance, such as dynamite, gunpowder or nitroglycerine, which by its combustion or decomposition will generate a gas with so great rapidity that it can be used in firearms or for blasting.
Question about. What keeps a shell from falling to the ground? 2-686
- Extension cord**, how to repair, 6-2045
- Extradition**. The act of delivering or giving-over by one state or nation to another, as when a fugitive from justice is sent back by the state or country in which he has taken refuge.
- Eyam**, England, plague at, 9-3063
- Eyck, Hubert van**, Flemish painter
character of painting, 4-1222
introduction of oil painting, 4-1222, 1460
Picture, Adoration of the Lamb, 4-1223
- Eyck, Jan van**, Flemish painter
as portrait painter, 4-1222, 1225
introduction of oil painting, 4-1222, 1460
Picture, Portrait of a man and his wife, 4-1223
- Eyde, Samuel**, inventor, 16-5804
- Eyebright**, parasitic plant, description, 1-332
Picture (in color), 14-4993
- Eyebrows**
Question about: What are our eyebrows for? 11-3840
- Eyes**
* Story of the eye, 10-3683-86
* Wonderful curtain, 11-3801-04
aid sense of balance, 10-3426
animals without, in Mammoth Cave, 4-1299
blind spot, 11-3891
color of, 10-3685
development, from those in lower animal forms, 10-3683-84
fishes have no eyelids, 10-3474
insects', 11-4134
of vertebrates and invertebrates compared, 10-3684
range of vision, 19-7245-46
removing dust or grit, 11-4082
* retina, or curtain, 11-3801-04
temporary blind spot, 14-1950
Picture, portion magnified, 11-3801
rods and cones, 11-3801-03
yellow spot, 11-3801-02
See also *Optical illusions*; *Sight*
Questions about
Are earrings good for the eyes? 1-187
Are pictures of the things we see printed on the eyes? 16-5960
Can country people see better than town people? 12-4398
Can we see everything with our eyes? 10-3730
Do a horse's eyes magnify? 17-6178
How can we see with our eyes shut? 7-2359
Is there a color our eyes cannot see? 10-3579
What is cataract of the eyes? 12-4505
What is the use of having two eyes? 3-878
What makes the pupil of the eye grow larger and smaller? 14-5218
Why can we hear better when we shut our eyes? 12-4279
Why cannot we see very small things with our naked eyes? 14-4952
Why do some faces in pictures seem to follow us? 8-2718
Why do we see lights when we get a blow on the eye? 13-4596
Why does an onion make our eyes water? 3-1114
Why have we two eyes? 9-3100
- Pictures**
diagrams, 11-3801
showing optic nerves, 10-3683
of fish, 10-3684
of fly, 10-3684
of insects, magnified, 13-4672-74
of man, 10-3684-86
- Eye's wonderful curtain**, * 11-3801-04
- Eyre, Edward John**, Australian explorer, 3-864
Picture, in desert, 3-862
- Eyre, Louis**, American architect, 18-6684

GENERAL INDEX



Faber, Frederick William, hymn-writer, 12-4440
Fabius Maximus, Surnamed the Delayer, Roman general; flourished 233-203 B.C.; wore out Hannibal by his defensive tactics.

Fables

explanation of, 2-539
 in French literature, 18-6562
 of Canada, 15-5373-74
 of India, 10-3718
 of La Fontaine, note on, 18-6712

Fables, Examples of

by Æsop, 1-58; 2-539-40; 3-1102; 4-1186, 1342; 6-1969; 11-3986, 4144; 13-4752; 14-4946; 15-5538; 17-6323-24

Look under Æsop, in index, for detailed list of titles

Castle-builder, by Jean de La Fontaine, 12-4270

Fox without a tail, 12-4487

of India

Ape and the wedge, 10-3718
 Brahman and the goat, 10-3718
 Brahman and the pots, 10-3718
 Lion and the cat, 10-3718
 Tiger and the traveler, 10-3718

Reynard the fox, 8-2965-66
Fabre, Philippe François, French poet, 10-3612

Fabrizio, Gentile da, Italian painter, 3-959

Fabricius of Acquapendente, studied circulation of blood, 8-2725

Face

drawings of, how to make, with picture, 17-6261

index to character, 4-1416

Questions about

Why do our faces keep warm without clothes? 8-2720
 Why do some faces in pictures seem to follow us? 8-2718
 Why does a face in a mirror seem crooked? 17-6285
 Why does my face turn white when I am frightened? 16-5958

Facile princeps, Latin for "easily first."

Facta non verba, Latin for "deeds not words."

Factories

organization of, 17-6092-93

owned by stores, 10-3674

ownership of, 17-6091

See also Manufactures

Question about. Why does a factory have a tall chimney? 4-1232

Picture, 17-6091

Factum est, Latin for "it is done."

Fading, color, reason for, 4-1354

Faéd, John, artist

Picture, about Robert Bruce, 12-4207

Faéd, Thomas, artist

Picture, Burns and Highland Mary, 6-2137

Faenza, Ancient city of northern Italy, famous for its manufacture of the kind of pottery known as faience. It is surrounded by medieval walls and has a 15th-century cathedral: silk-spinning and sulphur-refining are carried on.

Faerie Queene, by Edmund Spenser, account of, 3-1119-20

Picture, 3-1121

Faeries, see Fairies

Fahrenheit, Gabriel Daniel, made thermometer, 7-2648; 15-5573

Fahrenheit thermometer, 7-2648

scale of temperature, 14-4902-03

Fainting, treatment for, 16-5981

Questions about

Why do smelling-salts revive us? 10-3730
 Why do we sometimes faint at very sudden news? 10-3731

Fair Maid of Perth, by Scott, note on, 11-4070

Fairbanks, Charles W., vice-president of U. S.

Picture, portrait (engraving) 11-3548

Fairfax, Thomas, Lord, English soldier; born, Denton, Yorkshire, 1612; died, Nun Appleton, Yorkshire, 1671; a Parliamentary leader.

at Marston Moor and Naseby, 11-3846

Picture, portrait, 11-3845

Fairies

legend about, Brownie of Snaefell, 15-5537

See also Fairy tales

Poems about

Arming of Pigwiggen, by Michael Drayton, 3-847

Culprit Fay, by J. R. Drake, 4-1271

The Fairies, by William Allingham, 2-485

Fairy Life, by William Shakespeare, 6-2152

Fairy Lullaby, by William Shakespeare, 6-2153

Fairy Song, by John Keats, 2-606

Fairy Tempter, by Samuel Lover, 8-2906

Goblin Market, by C. G. Rossetti, 9-3103

Kilmeny: a Fairy Legend, by James Hogg, 16-5863-66

Queen Mab, by Thomas Hood, 3-1138

Queen Mab and Her Fairies, 7-2636

Fairmount, W. Va., oil well, picture and note, 13-4543

Fairy-cap, name for foxglove, 17-6127

Fairy horn near Gloucester, legend, 17-6324

Fairy rings, fungi, 10-3722-23; 11-3905

explanation, 5-1628

Question about. What makes a fairy ring?

4-1356

Fairy tales

Aladdin and the wonderful lamp (in brief), 12-4193

Ali Baba and the forty thieves, 2-537

Beauty and the beast, 18-6607

Boy at the giant's castle, 19-7008

Brownie of Snaefell, 15-5537

Childe Roland to the dark tower came, 9-3245

Cinderella and the glass slipper, 19-7222-24

East of the sun and west of the moon, 5-1845

Fairies and the hunchbacks, 10-3442

Fairies of St. David, 2-404

Fairy maid of Van Lake, 15-5441

Forbidden room, 15-5439

Fruit of happiness, by Howard Pyle, 11-3832-36

Giant of the peak, 15-5537

Giant who had no heart in his body, by Kay Nielsen, 4-1525

Giant with three golden hairs, 5-1841

Giant's plaything, 5-1575

Goblins in the gold-mine, 4-1523

Hansel and Grethel, 6-1965

Hop-o'-my-thumb, 17-6317-19

Jack and the bean-stalk, 10-3597-99

Jack the Giant-Killer, 18-6793-94

King of the Golden River, by John Ruskin, 6-2221-28; 7-2343-50

Land of youth, 7-2601

Little Red Riding-Hood, 18-6474

Little tiny Thumbeline, 18-6787-90

Magic boy fiddler of Sicily, 11-3983

Magic tinder-box, 6-2105

Miss Dollie and Captain Blue, 14-5255

Mona and the forsaken Merman, 1-59

Music of the willing heart, 5-1688

Noureddin and the wonderful Persian, 13-4755

Olaf of Orchard Farm, 12-4301

Pair of magic slippers, 2-402

Poet, goblin and donkey, 15-5537

Prince who was poor, 15-5529

Prince's five servants, 13-4749-51

Princess Florina, 7-2458-59

Princess who became a goose girl, 11-3830

Princess's golden ball, 14-5193

Puss in boots, 10-3441

Rapunzel's golden ladder, 9-3352

Remarkable rocket, by Oscar Wilde, 14-5266

Rum-pel-stilt-skin, 11-3981

Scramblepipe tries to understand, 3-854

Selfish giant, by Oscar Wilde, 4-1187

Shepherd-maid and the sweep, 11-3903

Silent princess, 13-4557

Sindbad the sailor, 19-7215

Sleeping beauty, 19-7006-07

Snowdrop and the dwarfs, 7-2597

Son of a gun, 19-6998-7000

Story of Faithful John, 11-3901

Tale of Jenny Martin, 10-3713

Three bears, 16-5825

Three nights in the enchanted castle, 11-3984

Tom Thumb, 18-6611-12

Twelve dancing princesses, 4-1521

Undine, the story of a water nymph, 11-4141

When Betty lost her way, 10-3716

Wind sings down the chimney, 5-1576

Witch's ring, 2-541

GENERAL INDEX

Fairy tales (*continued*)

- Wizard's castle in the air, 10-3444
 Yellow Dwarf, 15-5443-44
- Fairy tales**, * writers of, 9-3193-99
- Fairy's petticoat**, name for foxglove, 17-6127
- Fait accompli**, French for "accomplished fact."
 An expression frequently used in conversation.
- Faith**, concrete ship
Pictures, with notes, 7-2311
- Falconer, E.**, wrote Killarney, 10-3611
- Falconet, Etienne Maurice**, French sculptor, 13-4703
- Falconry**, sport, 10-3754
- Falcons**, birds, 10-3753-54
Pictures
 Greenland falcon (gravure) 10-3764
 peregrine falcon (gravure) 10-3761; (in color) 8-2899
- Falkirk, Battle of**, 13-4586, 4588
- Falkland Islands**, account of, 9-3188
 wolves in, 2-599
- Fall River**, Port of Massachusetts, with a great manufacture of textiles, especially cotton. It has abundant supply of water power.
- Fallfish**, description, 15-5634
- Falling**
Questions about
 Can we fall off the earth? 12-4504
 Why does a falling object turn round? 13-4827
- False acacia**, see Locust trees
- False flax plant**, seeds of, 4-1275
- False hellebore**, see Indian poke
- False miterwort**, see Foam-flower
- False Solomon's seal**, see Spikenard, Wild
- Falstaff, Sir John**, Shakespearian character
Pictures, 3-841
- Fame**
Poem about. In After Days, by Austin Dobson, 7-2365
- Famines** in India, irrigation to prevent, 7-2544
- Faraday, Michael**, English scientist
 * life and work, 4-1251-52
 discovered sulphuric ether is anæsthetic, 8-2729
 discoveries in electromagnetism, 4-1251; 17-6236
Picture, portrait, 4-1243
- Farman, Henri**, French aviator, 1-172
Picture, Farman biplane, 1-175
- Farmers**
Poem about. A Royal Race, by James McCarroll, 10-3481
- Farming**, see Agriculture
- Farnese bull**, marble group, 12-4460
Picture, 12-4463
- Farnese Palace**, Rome, architecture of, 17-6300
Pictures (gravure) 17-6304, 6308
- Faroe Islands**, 15-5298
- Farragut, David Glasgow** (1801-70). American admiral, born in Tennessee. He entered the United States Army in 1810 and had a long and brilliant career.
 captured New Orleans, 7-2434
 captured Mobile, 7-2438
 statue by St. Gaudens, 14-4937
Poem about. Farragut, by W. T. Meredith, 10-3643
Picture, portrait, 7-2437
- Farrington, Harry Webb**, see Poetry Index, for poem and note
- Farther India**. Name for Straits Settlements and Malaya.
- Farthing**. An English piece of money whose value is one fourth of an English penny.
- Fascism** in Italy, 13-4568
- Fashion**, effect on commerce, 10-3674
- Fashoda**. Sudanese town on the White Nile, 470 miles south of Khartoum.
- Fates**, in Greek mythology, 9-3228
Picture (gravure), 9-3229
- Father Damien**, see Damien, Father Joseph
- Father-lasher**, fish. *Picture* (in color), 16-5782
- "Fathers of Confederation"**, met at Quebec, 1864, 4-1488
- Fatigue**
 of metals, 10-3729
Question about. What happens when we get tired? 12-4503
- Fatimites**. Arabian dynasty of Caliphs in Egypt which reigned over North Africa and Syria 909-1171; descended from Fatima, daughter of Mohammed.

Fats

- digestion of, 6-2085-86
 use as food, 6-2187
Question about. What is the difference between fat and oil? 14-5224-25
- Fancets**, repairing leaks, 10-3766
- Fauns**, in mythology, 9-3236
Pictures, statues, 12-4327, 4465; (gravure), 12-4334-35
- Faust**, origin of story, 17-6268
- Faustinus**, Christian martyr, 9-3068
- Faux-Namiti Bridge**, China
Picture and note, 1-37
- Faux pas**. French for "false step, or mistake."
- Fawcett, John**, hymn-writer, 12-4440
- Fawkes, Guy**, plot of, 6-1974
- Fear**, influence, as emotion, 12-4441
Questions about
 What makes our teeth chatter when we are cold or frightened? 10-3475
 Why do we fear a beetle when we know it cannot harm us? 1-310
 Why does my face turn white when I am frightened? 16-5958
- Feast of Dolls**, Japan, 2-574
- Feast of Flags**, Japan, 2-574
- Feast of the Dead**, Japan, 2-574
- Feather and fans**, game, 8-2744
- Feathers**
 collection of, how to make, 14-5005
 pens made from, 10-3550
 structure of, 8-2758, 2760
Questions about
 If a feather is lighter than air why does it ever settle? 7-2362
 Why do birds cast their feathers every year? 17-6290
- February**. The second month of the year, named for a Roman festival, *februa*. It has 28 days ordinarily, but in leap years, that is, in every fourth year, it has 29 days.
- Federal Reserve Board**. A board of seven members, at Washington, acting as the directing head of the Federal Reserve system of banking established in the United States by the Federal Reserve Act of 1913. Under this act the country is divided into 12 districts, each with its Federal Reserve bank and some of these have branches. Stock in the Federal Reserve banks is owned by the banks of the district. National banks must belong to the system, and State banks may join. The Federal Reserve Board issues paper money based upon gold, and the 12 banks may in emergencies issue notes based upon commercial paper and other approved securities.
- Federal Trade Commission**. A non-partisan commission of five members appointed by the president of the United States to "prevent persons, partnerships or corporations, excepting banks and common carriers subject to the acts to regulate commerce, from using unfair methods of competition in commerce."
- Federalist**, papers about U. S. Constitution, 12-4450: 20-7560
- Federalist Party**. The term Federalist was first used for those in favor of ratifying the Constitution but soon came to mean those in favor of a strong central government with limited suffrage. It opposed the War of 1812, and went to pieces after it ended.
 compared with Republican, 5-1702
- Federated States of Malay**, 9-3184
- Feed for animals**
 Forage plants, 7-2409-12
- Feet**
 bones of, 5-1677
 exercises, 15-5332
 of water birds, 11-3881
 soles aid in balance, 10-3425
Question about. What happens when our foot goes to sleep? 17-6289
- Faisal**. First king of Iraq, or Mesopotamia; son of King Hussein of Hedjaz. He was created king in 1921.
- Feldspar**. The name given to a group of minerals made up of silica, alumina and potash or soda. A feldspar is opaque, has a glassy lustre and varies in color from flesh-red to white, with some beautiful exceptions. Feldspars make up about 60 per cent of the world's crust and are the most important part of granites, gneisses and lavas.
- Felling**, form of sewing, directions for, 1-333

GENERAL INDEX

- Felony.** The highest class of crimes as they are graded by statute. In most states of the United States it is a crime punishable by death or by confinement in the penitentiary or state prison.
- Felt.** A fabric of short hair or wool, or of wool and fur, matted together. The matting is accomplished, with the aid of heat and moisture, by rolling, beating and pressure. It is used for hat-making, linings for garments, floor coverings, etc.
- Fénelon, François de Salignac de la Mothe,** French author, 18-6714
Picture, portrait, 18-6712
- Fenians.** The members of the Fenian Brotherhood, an association of Irishmen which was founded in 1857 in New York. Its object was to secure the independence of Ireland, and was only a part of a world-wide movement.
- Fennel, flower, picture (in color) 14-4981**
- Fer-de-lance, snake, 15-5416**
- Ferber, Edna, novelist, 14-5012**
- Ferdinand, surnamed the Catholic.** First king of all Spain; born, Sos, Aragon, 1452; died, Madrigalejo, 1516.
Picture, receiving keys of Granada, 14-5043
- Ferdinand I, tsar of Bulgaria, 14-4926**
- Ferguson, Benjamin F.,** left fund to Chicago, 19-7124
- Ferguson, Patrick, at King's Mountain, 4-1171**
- Ferland, l'Abbé, French-Canadian historian, 14-5105**
- Fermentation.** The process of decomposition or breaking-down of a compound organic substance brought about by the action of living organisms or by certain chemical agents. For example, in bread-making yeast breaks up the sugar into alcohol and carbon dioxide.
- Fernando, prince of Portugal, hostage to Moors, 4-1257**
- Fernando Po, Spanish West African island, producing sugar, bananas and yams. Area, 770 square miles.**
- Ferns**
 description and method of reproduction, 3-884
 in highest group of flowerless plants, 10-3724
 multiply rapidly, 1-329-30
 number of spores, 13-4826
Poem about Fern and the Moss, by Eliza Cook, 12-4273
Question about. In what way does a fern grow? 4-1232
Pictures
 fern trees, Carboniferous period, 3-787
 giant ferns, Australia, 7-2419
 spores and growth of new plant, 3-1015
 * *Pictures (in color) 10-3725-28*
- Ferrara, René, duchess of, aided Prince of Condé, 19-6881**
- Ferrara.** Capital of province of Ferrara, Italy. a cathedral and university city with ancient walls and many medieval palaces. It manufactures hemp, soap, glass and silk.
- Ferrari, Gaudenzio, Italian painter**
Picture. St. Catherine bound to a wheel, 6-1995
- Ferrets, animals, 3-873**
 kept in post offices, 8-2658
Pictures, 3-868
- Ferrier, Sir David, discoveries about brain, 15-5492**
Picture, portrait, 15-5481
- Fertilization of flowers, see Flowers—fertilization**
- Fertilizers**
 artificial, how produced, 16-5946, 5948
 Liebig's discovery, use of ground bones, 2-592
 made from atmospheric nitrogen, 16-5804
 seaweed used as, 2-587
 what they are made from, 9-3216
See also Nitrates
Question about. Why does manure make a plant grow faster? 10-3581
- Ferula fetida, yields asafetida, 8-2911**
- Fescue-grass, 7-2410**
 sheep's fescue, note and picture, 10-3652
 tall fescue, note and picture, 10-3662
Picture, 10-3655
- Fessenden, Reginald Aubrey, and wireless telephony, 17-6248, 6368**
- Fête champêtre.** French phrase meaning "out-door festival."
- Fetish.** Any material object looked upon with awe and regarded as having magical powers to protect from harm or bring success. It may be natural, as a tree, an animal or any part of an animal; or artificial, as a carved form.
- Feudalism**
 Canadian form, seigniorial system, 2-682
 in England, under William the Conqueror, 4-1439
 in Germany, 11-3963
 relation to heraldry, 1-186
- Fever**
 need for sweating, 4-1419
- Fez.** One of the capitals of Morocco, 100 miles east of the port of Rabat. A picturesque walled place, it has a Moslem university.
- Fiat money.** Paper money which is issued by a government to be used as money, although it is not based on coin or bullion. Its value depends upon the soundness of the government issuing it.
- Fibre silk, or rayon, how made, 15-5310**
- Fickett, Francis, built the Savannah, 17-6402**
- Fiction**
 * history of fiction-writing in England to 19th century, 6-2253-58
 * Dickens and Thackeray, 8-2731-38
 * English novelists, 19th century, 11-3891-99
 * Scott and his stories, 7-2625-32
 * American writers, recent, 14-5007-16
 * Canadian, 15-5368-71
 French Canadian, 15-5367
 Russian, 19-6908-11
 Spanish, 19-7127
 value, 1-80
See also literature under the name of its country, as French literature, etc.
- Fiddler-crab.** A small crab called by this name because of a large oddly shaped claw which it waves about in such a way as to suggest fiddling.
- Field, Cyrus West, and Atlantic cable, 12-4293-94, 4296**
- Field, Eugene, American author, 13-4819**
See also Poetry Index for poem and note
- Field, James T., see Poetry Index for poems and notes**
- Field hockey, see Hockey, Field**
- Field of the Cloth of Gold, 10-3434**
- Fieldfares, birds, 9-3140**
Picture, 9-3133
- Fielding, Henry, English novelist, 6-2254-56**
Picture, portrait, 6-2255
- Fiesole, Giovanni Angelico da, see Angelico, Fra, of Fiesole**
- Fiesole.** Ancient Etruscan city near Florence, Italy, inclosed by a cyclopean wall. Its cathedral dates from the 11th century, and it has remains of a Roman amphitheatre.
- Fife, David, developed Red Fife wheat, 4-1470**
- "Fifty-four forty or fight," meaning, 6-1918**
- Fighting for the crown, * 5-1679-86**
- Figs**
 * account of, 6-2157-62
 sacred fig or bo tree, 9-3261-62
Question about. What do we mean when we say we don't care a fig? 16-5960
Pictures
 fruit and tree, 6-2159
 life history, 6-2156
 plantation in California, 6-2158
- Figwort, plant, 16-5880**
 water figwort, 16-5878
Pictures
 knotted figwort, flower (in color) 16-5881
 water figwort, 16-5878
 yellow figwort (in color) 14-4989
- Figwort Family, in botany, 13-4876**
- Fiji Islands, 7-2578**
 account of, 9-3188, 3302, 3304
 products, 9-3299
 map, showing products, 9-3299
Picture, native man, 9-3297
- Filberts, account of, 6-2278**
Picture, 6-2274
- File-shells, description, 19-6888**
- Filefishes, description, 16-5900**
Picture, 16-5895
- Filene, Edward A., merchant, note and portrait, 19-7166**
- Filibuster.** A member of a company banded together, without regard for international law, to invade or revolutionize a foreign state.

GENERAL INDEX

- Filibuster.** To interrupt or hinder legislation by wasting time in useless speeches, motions, objections, etc., in debate.
- Filippo Lippi, Fra, see** Lippi, Fra Filippo
- Filling the gap, game, 3-1029**
- Fillmore, Millard, president of U. S.**
administration, 11-3940
life, outline of, 11-3952
Picture, portrait (gravure) 11-3947
- Films of moving pictures, how developed, 18-6598**
Pictures, 18-6595-99
preparing for screen, 18-6595, 6599
- Filter, directions for making, 18-6781**
- Finch, Francis Miles, see** Poetry Index, for poems and notes
- Finches, birds**
* account of, 8-2972-74
of western North America, 14-5145
purple finch, account of, 13-4832
Pictures
American house finch (in color) 12-4372
purple finch, 13-4833
- Fine.** In law, a sum of money exacted as a punishment for an offense.
- Finfeet, birds, 11-4130**
- Fingers**
arrangement of, 5-1676
bones of, 5-1676-77
removing splinters from, 11-4082
Questions about
Why are all our fingers not the same length? 7-2485
Why does a finger lose its feeling when it is numb? 2-460
Picture, magnified cross section, 4-1415
- Finisterre.** Northwesternmost cape of Spain.
- Finland**
account of, 18-6461
* history and description, 16-5859
map, 13-4691
national song, extract, 17-6252
political control, history of, 18-6461
Picture, Helsingfors, 16-5861
- Finnan haddie, form of haddock, 16-5780**
- Finsen, Niel, medical discoveries of, 15-5492**
- Fjords, of Norway, 15-5300**
- Fir tree**
Douglas fir, logs of, note and picture, 8-2677
story about the discontented fir-tree, 15-5323-25
varieties and wood of, 12-4249
Poem about. Fir-Tree (German folk-song), 7-2367
- Firdausi, Persian poet, 15-5463**
- Fire**
action in forming the earth, 2-525-27
man's first use of, 3-989
way of making, outdoors, 12-4376
ways of making, early, 19-6965-66
ways of making, notes and pictures, 1-308-09
why steam extinguishes, 11-3979
See also Fires; *also* headings beginning Fire
Poems about
Armies in the Fire, by R. L. Stevenson, 1-101
Pictures in the Fire, by A. A. Procter, 2-738
Questions about
Can a fire light itself? 14-4949-50
Does smoke always come from a fire? 15-5517-18
How did men find fire? 9-3353-54
If the gases in water make fire, why does water quench it? 15-5614
What makes flames dance in an open-grate fire? 14-5221
What makes the fire change color? 16-5746
Why do houses seem crooked when we look across a fire? 5-1752
Why does a flame rise to a thing held above it? 11-4133-34
Why does a light go out in water, but flare up in gasoline? 10-3729
Why does a match flare up when turned upside down? 14-5087
Why does a match strike? 1-307
Why does celluloid catch fire so easily? 10-3477
Why does not iron burn in the fire? 4-1356
Why does oil burn more easily than some other things? 5-1751
Why does the fire go out? 11-3839
Why is a fire pail filled with sand? 4-1452
Why is the fire hot? 16-5846
- Fire boats, of N. Y., description of, 9-3162**
Pictures, 9-3169
- Fire-damp, in mines**
Picture, miner testing for gas, 3-793
- Fire departments**
firemen, choice and training in New York city 9-3160
in ancient Rome, 9-3157-58
largest in world in N. Y., 9-3159-62
Philadelphia, 1736, 9-3158
Pictures, 9-3161-69
- Fire engines**
Pictures, 9-3161, 3163
See also Fire prevention
- Fire prevention**
* When the fire alarm rings, 9-3157-64
Boy Scout aid, 12-4452
in Europe, 9-3164
safeguards on ships, 12-4427
steam fire pump, first one, 9-3159
Pictures, 9-3161-69
- Fire-screen, directions for making, 11-3858-59**
- Fire-tails, birds, see** Redstarts
- Firearms, improvements through inventions, 19-7210**
See also Guns
- Firebirds, of Hawaii, 15-5450**
- Firecrest, bird, variety of warbler, 9-3279**
- Fireflies, light given out by, 18-6629**
- Fireplaces**
Picture, in old New England, 2-547
- Fireproofing.** The act of making an object or material proof against fire. Asbestos is often used for this purpose.
- Fires**
* What to do in case of fire, 10-3772
causes of, 9-3159, 3164; 10-3772
fewer in Europe than in U. S., 9-3164
forest, control of, in U. S. national forests, 8-2805-06, 2808
great fire of London, from Evelyn's Diary 6-1980; 8-2819
beginning of, 12-4356
great fires in Canada and U. S., 9-3159
great fires in Middle Ages, 9-3158
losses in America and Europe compared, 9-3164
prevention of, *see* Fire prevention
Picture, Chicago, damage done by fire (gravure), 19-7113
- Fireweed, see** Willow-herb
- Fireworks**
Question about. How do fireworks get their colors? 13-4825
- Firman.** Passport issued by the Turkish Government under the Sultanate; in India, a license to engage in a particular trade or undertaking; also applied to denote any official decree which emanated from the Ottoman Porte.
- First aid**
* Bones and arteries of our body, 13-4618-19
Boy Scout training, 12-4454
carrying an injured person, 12-4267
* Fractures, dislocations and sprains, 13-4847-48
* Giving first aid to the injured, 12-4266-67
* How to treat broken bones, 13-4732-33
Right way to use a life-buoy, 18-6639
treatment for bleeding, 4-1210-11; * 14-5000-01
treatment for choking, 4-1328
* What to do in case of fire, 10-3772
* What to do in cases of drowning, 17-6147-48
* What to do in many kinds of accidents, 16-5980-81
* What to do in trouble, 11-4082
* Wounded arteries and veins, 15-5599-5600
- First living things, * 1-219-22**
- Fish, Williston**
Last will of Charles Lounsbury (story), 5-1687
- Fish and fisheries**
* How fish and oysters are taken, 11-4051-63
fish as food, 7-2569
in Alaska, 16-5792
in Iceland, 15-5298
in United States, 9-3208
in Northeastern states, 11-4145
leading countries for, 11-4051
nets, use of, 11-4050, 4052-53, 4056
See also Fishing; Fishes
Pictures
* catching, packing and preserving fish, 11-4050-61
- Fish-crow, bird, 14-5023**

GENERAL INDEX

- Fish culture**, fish hatcheries, U. S. government, 9-3208
Picture, trout hatchery at White Sulphur Springs, 11-4059
- Fish hawk**, *see* Osprey—American
- Fisher**, Mrs. Dorothy Canfield, American novelist, 14-5010
- Fisher, John Arbuthnot**, 1st baron, reorganized English navy, 7-2300
- Fisher**, animal. *Picture*, 13-4697
- Fisherman's bend**, knot, how to make, 9-3378
- Fishermen**
 Dr. Grenfell's work for, 7-2496-2500
Poems about
 The Fisherman, by Barry Cornwall, 4-1384
 The Three Fishers, by Charles Kingsley, 15-5522
- Fishes**
 * Life in the waters, 15-5539-42
 * Fishes of river and lake, 15-5629-37
 * Fishes of shallow seas, 16-5773-80
 * Fishes of the deep sea, 16-5893-5900
 abyssal types, 16-5898-99
 characteristics, 1-256
 color, 15-5541
 eggs, trout, development of, 15-5633
 electricity produced by some varieties, 16-5665
 flying, account of, 15-5542
 prehistoric forms
 first, in Silurian period, 3-1032
 of Devonian period, development, 4-1175-76
 with armor, 15-5629-30
 skeletons of, 5-1559
 underground, lose eyes, 4-1299
 without organ of balance, 10-3427
See also Fish and Fisheries; Fishing; also names of fishes
- Questions about*
 Can a fish see and hear us? 11-3841-42
 Do fishes close their eyes and sleep under water? 10-3474
 Does a fish feel? 1-187
 How do fish live in a frozen pond? 11-3976
 How fast is a fish able to swim? 5-1606
 How is it that fishes are not salt when caught? 9-3100
 How is it that fishes do not drown? 8-2716
 If fish breathe under water, why cannot we? 14-5221
 Why cannot fish live in the Dead Sea? 17-6180
 Why cannot fishes live on land? 11-3841
 Why do fish die in a jar of water? 10-3732
 Why does not sea water make fishes thirsty? 7-2360
- Pictures*
 angler fish (gravure), 16-frontis.
 brain of, 8-2943
 in Carboniferous period, 4-1295
 in Devonian period, 4-1177
Pictures (in color), 16-5781-88
- Fishing**
 flycasting, directions, 15-5513
See also Fish and Fisheries
- Pictures*
 Eskimo fishing through ice, 7-2565
 using pound net, 11-4050
- Fiske, John**, American author, 13-4822-23
- Fitch, John**, American inventor; born, Windsor, Connecticut, 1743; died, Bardstown, Ky., 1798.
 invented steamboat, 17-6398
- Fits**, treatment for, 16-5981
- Fitzball, Edward**, wrote My Pretty Jane, 10-3609
Picture, portrait, 10-3605
- Fitzgerald, Edward**, English poet; born near Woodbridge, Suffolk, 1809; died, Merton, Norfolk, 1883.
 translated Rubaiyat of Omar Khayyâm, 15-5463
- Fitzmaurice, Major James C.**, Irish aviator, 1-182
- Fiume**, Italy, 17-6348
 since World War, 18-6458
- Five Famous Presidents**, * 3-1039-51
- Five Nations**, Indian confederacy, 1-165
 opposition to France, reason for, 1-248
See also Iroquois Indians; Six Nations
- Fives**, game, directions for playing, 4-1400
- Flies and threes**, domino game, 12-4375
- Flizeau, Armand Hippolyte Louis**
 experiments with measurement of light, 10-3473-74
- Fjords**, *see* Fjords
- Flaccus, Quintus Horatius, and Integer Vitæ**, 10-3611
- Flag**, flower, *see* Iris
- Flag Day**, holiday, 6-2092
- Flag of truce**. A white flag set up as a sign inviting the enemy to conference, or carried by an officer who is sent as a messenger to the enemy. Its meaning is respected and protected.
- Flag-wagging**, *see* Signaling—flag-wagging
- Flags**
 national, when adopted, 19-7184
 origin and early history, 19-7181
 rules for use, 19-7187
 state flags of U. S., 19-7184
 United States flag, 19-7182-92
 first flag of U. S., 6-2092
- Poems about*
 The Colors of the Flag, by F. G. Scott, 10-3482
 The Flag, 15-5650
 Flag Day, by Minna Irving, 15-5650
 Star-Spangled Banner, 17-6249
Pictures, flags of U. S. (in color) 19-7189-92
- Flags**, game, 3-1029
- Flagstaff**, Arizona, observatory, 1-287
- Flame**, effect of sound on, 19-6855
- Questions about*
 What makes flames dance in an open grate fire? 14-5221
 Why does a flame rise to a thing held above it? 11-4133-34
- Flamingoes**, birds
 * account of, 11-3890
 description, 14-5018
Pictures, 11-3889
Picture (in color) 12-4371
- Flamsteed, John**, first Astronomer Royal, 1-283
Picture, portrait, 1-281
- Flanders**, part of Belgium, description, 15-5496-5502
 painting, *see* Painting, Flemish
Poem about. In Flanders Fields, by John McCrae, 16-5924
Pictures, 15-5494-5506
- Flashlight**, explanation of, with diagrams, 16-5664
- Flatfish**, description, 16-5778
 life-history, with pictures, 16-5772
- Flatiron building**, N. Y. city. *Picture*, 9-3213
- Flaubert, Gustave**. French writer; born, Rouen, 1821; died, Croisset, near Rouen, 1880.
- Flax**
 * account of, 8-2784, 2786
 cultivation, 5-1627
 manufacture into linen, 9-3317-22
Pictures, 8-2785
 flower (in color) 8-2997
 gathering and preparation, 9-3320-21
- Flax lily**, *see* Phormium
- Flaxman, John**, English sculptor, 13-4854
- Flaxseed**. *Picture* of flower (in color) 16-5882
- Fl seabane**
 blue fl seabane, note on, 14-5160
 varieties and description, 18-6661
Pictures
 blue fl seabane, 14-5160
 yellow fl seabane (in color) 14-4983
Picture (gravure) 19-7174
- Fleas**, account of, 17-6424
- Fleawort**, flower. *Picture* (in color) 14-4986
- Flecker, James Elroy**, English poet, 12-4234
- Fleming, John Ambrose**. English electrical engineer; born, Lancaster, 1849.
 and wireless telephony, 17-6248
Picture, portrait, 17-6246
- Fleming, Marjorie**, story of, 10-3717
 verse by, 12-4214
- Fleming, Sir Sanford** (1827-1915). Born, Kirkcaldy, Scotland. Came to Canada, 1845. Famous Canadian engineer.
 and time zones, 16-5842
- Flemish painting**, *see* Painting, Flemish
- Flesh**
Question about
 What is meant by the saying that all flesh is grass? 2-689
- Fletcher, John**, English dramatist, 3-1125
- Fleur-de-lis**, or lily
 emblem of France, origin, 17-6181
See also Iris
Question about. What did the fleur-de-lis mean in the history of France? 3-1115
- Flexner, Simon**, physician, 15-5488

GENERAL INDEX

Flickers, birds, 13-4763; 14-5134

Picture, redshafted flicker (in color) facing 14-5133

Flies

* account of, 17-6420-24

diseases caused by, 17-6420

found in amber, explanation of, with pictures, 13-4824

Hessian fly, 18-6734

life history of housefly, with pictures, 18-6727

reproduction from larvæ, 17-6124

Poem about, Spider and the Fly, by Mary Howitt, 12-4269

Questions about

Can a fly hear ordinary sounds? 11-3978

Can a fly see all ways at the same time? 11-4134

How does a fly walk on the ceiling? 2-457

Is a fly stronger than a man, comparing their size? 16-5844

Where do all the flies go in the winter? 12-4399

Pictures, 17-6416

grubs, pupæ and adults, 17-6421

Pictures (in color) facing 18-6720-21

Flinders, Matthew. English navigator; born, Donnington, Lincolnshire, England, 1774; died, London, 1814; published *Voyage to Terra Australis*.

explored Australian coast, 3-862

Picture, portrait, 3-863

Flint, use to get fire, 3-989; 19-6965

Flintlocks, muskets, description, 19-6965

Flixweed, large seed production, 9-3293-94

Floating

Question about. Why does a stick float? 17-6178

Floating-meadows

formed by microscopic seaweeds, 4-1276

in lakes, 4-1278

Flodden Field, Battle of, 12-4211-12

James IV killed, 5-1818

Pictures connected with, 12-4211

Flood, Henry, and Irish Parliament, 8-2935

Flood (deluge)

Babylonian story of, 2-657-58

Greek story of, 3-1070

Question about. What was the old Greek story about the flood? 3-1114

Flora, goddess of flowers, 9-3235

Floras, local divisions of plant life, 12-4507

Florence. One of the most important cities of Italy, famous for its beauty, its splendid art collections, and its great place in history. On both banks of the Arno, it still has remains of its old wall and of Roman baths and an amphitheatre; its medieval churches and palaces are among the most beautiful in Europe.

architecture, Renaissance period, 17-6298

* art and architecture, 5-1735-40

Baptistery gates, 5-1737-38; 13-4604

Brancacci Chapel, frescoes by Masaccio, 2-699

churches, 17-6163

Duomo (Santa Maria del Fiore), 17-6162-63

Brunelleschi's dome, 5-1738-39

history, 5-1735

* painting, 2-691-99

Renaissance period, 2-697-99; 3-957-58

palaces, 17-6298

Pictures, 17-6296-97

Baptistery gates, 13-4603; (gravure), 5-1741

famous buildings (gravure) 17-6303, 6306, 6308

scenes connected with art, 5-1734

* various scenes (gravure) 5-1741-48

Floricans, birds

Pictures, 11-4005

Bengal florican (in color) 12-4872

Florida. Southernmost Atlantic state; area, 58,666 square miles; capital, Tallahassee. It has a lovely climate and luxuriant vegetation. In the cultivated regions cotton, sugar, tobacco, and many kinds of fruit flourish amazingly. Lumber and tobacco products are the chief manufactures. Jacksonville, the largest city, Pensacola, Tampa and Key West are the chief towns; Palm Beach and Miami are famous winter resorts. Abbreviation, Fla. Nickname, "Everglade State." State flower, orange blossom. Motto, "In God we trust." "Florida" comes from the Spanish words meaning "Feast of Flowers" (Easter Sunday). First settlement, St. Augustine, 1565.

Florida (continued)

described in Southern States, 13-4517-28;

14-4889-4900

discovered by Ponce de Leon, 1-242

divided into East and West Florida, 6-1910

fruit-growing in, 6-2057

made a state, 11-3940

returned to Spain by Great Britain, 6-1910

seceded from Union (Jan. 10, 1861), 7-2430

sold to U. S., 6-1910

sponge industry, with pictures, 8-2916-20

Pictures

flag (in color), 19-7190

Jacksonville and Miami, 13-4527

St. Augustine, 18-6828

scene in the Everglades, 1-156

sponge fisheries, 8-2917-19

taking fish in pound net, 11-4050

Florida moss, 9-3268

Florin. An English coin of silver worth 2 shillings, in use since 1849. The name, derived from the Latin *florin* (flower), was first given to a gold coin stamped with a lily issued at Florence in 1252. There was a gold florin issued in England by Edward III in 1343-44. The Italian city of Florence also issued a florin.

Flounders, fishes, and flounder family, 16-5778-79

Picture (in color) 16-5784

Flour and flour mills

* How flour is made, 8-2795-2802

invention of roller mills, 8-2798

experiment to find what flour contains, 2-626

grinding, invention of roller process, 19-7214

history, early, 8-2795-96

development, 1-372

process of manufacture, 1-376; 8-2796-2802

whole wheat flour, 1-372

Pictures

manufacture, packing and storing flour, 8-2797-2802

showing manufacture, 1-376-78

Flower-box, **Hanging**, how to make, 6-2262

Flower-box, **Window**

how to make, 2-513-14

Flower-peckers, birds

Picture, orange-breasted (in color) 10-3621

Flower-pots

Question about. Why has a flower-pot a hole in the bottom? 16-6554

Flower stand, directions for making, 8-2875-76

Flowering rush, *see* Rush, Flowering

Flowerless plants, * 10-3721-28

Flowers

* Families of plants, 13-4870-80

* Flowers and fruits, 3-1013-16

of North America

* of eastern North America, 17-6273-82;

18-6567-72

* of Pacific coast, 19-6927-40

* of the Middle West, 18-6655-67

* of the South, 19-7085-95

* Flowers of rocky places, 15-5601-12

* Flowers of the garden, 19-7169-72

* Flowers of the marshes, 16-5727-34

* Flowers of the poets, 17-6123-31

* Flowers of the seaside, 14-5157-65

* Flowers of the stream, 16-5871-84

* Plants of two worlds, 14-4972-96

* Roadside plants and weeds, 15-5387-5400

adaptation to insects, 5-1609

arranging of, 2-620

fertilization, 2-506-09; 3-1013-14; 5-1609;

15-5613

aid of insects, 17-6064, 6073-76

bees, 17-6224

artificial fertilization, 15-5384

fragrance used to attract insects, 19-7246

movements when insects come, 2-746

of chicory, 15-5388

of date palm, 6-2158

of fig, 6-2156, 2162

of fleur-de-lis, 18-6568

of orchids and lady slippers, 17-6281-82

of yucca flowers, 18-6661

See also Reproduction—plant

Pictures, 2-509

how to preserve, 11-3853

largest in world, 1-332; 9-3266

national flowers, 17-6180-81

of grasses description, 10-3520, 3525

paper, directions for making, 12-4500-01

parts of, 2-506; 3-1013-14

in rose, 13-4872

GENERAL INDEX

Flowers (continued)

- perfume made from, 3-904
- protecting against cold, 5-1767
- seeds, how spread, 3-1083-87
- state flowers of U. S., list of, 17-6181
- See also* Plants
- Poems about*
 - Buttercups and Daisies, by Mary Howitt, 1-323
 - The Crocus, by H. E. King, 12-4472
 - The Daffodils, by William Wordsworth, 1-102
 - A Daisy at Christmas, by James Montgomery, 18-6468
 - Dance of the Flowers (German folk-song), 7-2366
 - Death of the Flowers, by W. C. Bryant, 18-6799
 - The Flowers, by W. B. Rands, 6-2244
 - The Last Rose of Summer, by Thomas Moore, 16-5922
 - Miss Poppy, by F. E. Weatherley, 6-2244
 - The Moss Rose, by F. A. Krummacher, 19-6987
 - To a Mountain Daisy, by Robert Burns, 14-5128
 - To the Fringed Gentian, by W. C. Bryant, 19-6873
 - The Violet, by Jane Taylor, 2-489
 - We are the roadside flowers, by Bliss Carman, 17-6282
 - The Wild Rose, by Goethe, 19-6987
- See also* names of flowers; as, Violets
- Questions about*
 - Can flowers talk to one another? 3-879
 - Does a flower sleep at night? 15-5520
 - Does a plant go to sleep? 2-685
 - Were all flowers once wild? 6-2121
 - What is the secret of a flower's power to grow? 2-461
 - When bees take honey from flowers do flowers get more? 4-1233
 - Where does a flower get its smell from? 10-3734
 - Why are some flowers sweeter at night? 19-7246
 - Why do some trees flower and others not? 8-2720
 - Why does the sun fade carpets and not flowers? 4-1354
 - Why should we have state flowers or national flowers? 17-6180
- Pictures*, 13-4870-71
 - daisies open and closed, 2-684
 - flowers and insect visitors (in color) 17-6073-76
 - garden flowers (gravure) 19-7173-80
 - parts of, 2-508-09
- Pictures* (in color) 13-4877-80; 14-4981-96; 15-5397-5400, 5609-12; 16-5881-84
- * of useful plants, 8-2997-3000
- Fluids**
 - pressure, 15-5285, 5288-89
 - scientific definition, 15-5285
- Flukes**, worms, 19-7147
 - Picture*, 19-7145
- Flume**, use in lumbering, 16-5986
- Fluorine**, boiling point of, 8-3014
- Fluorite**, or **fluorspar** (CaF₂). Consists of fluorine and calcium. It usually occurs in grains or crystals with a glassy lustre, and it is generally translucent, though not transparent. In color it may be white, violet, blue, purple or yellow, and is used sometimes as an ornamental stone. But its chief value is as the source of hydrofluoric acid, hydrofluosilicic acid, as a flux and as an agent in enameling.
- Flushing**. Dutch port at the mouth of the Scheldt, on Walcheren Island. On this port the Dutch plan to build new forts.
- Fly-bug**, 18-6724
- Fly-casting** in fishing, directions, 15-5513
- Fly-honeysuckle**, 15-5608
- Fly poison**, plant, 19-7089
 - Picture*, 19-7093
- Fly the garter**, game, 3-1153
- Fly-wheels**
 - Question about*. Does a fly-wheel ever explode? 15-5364
- Flycatcher Family**, birds, members of, 13-4831-32
- Flycatchers**, birds, account of, 9-3279-80, 3286; 14-5142
 - crested, account of, 13-4832

Flycatchers (continued)

- scissor-tailed or swallow-tailed, 14-5022-23
- varieties of, 9-3280
- Pictures*, 9-3287
 - scissor-tailed flycatcher, 14-5023
- Pictures* (in color)
 - Indian black-naped flycatcher, 12-4372
 - New Guinea broad-billed, 10-3624
 - pieb flycatcher, 9-3130
 - spotted flycatcher, 9-3129
- Flying**
 - Questions about*
 - Why cannot we fly in the air as we swim in the water? 16-5961
 - Why does a flying bird not fall to the ground? 7-2611
 - See also* Aviation
- Flying Cloud**, ship. *Picture*, 11-3917
- Flying Dutchman**. Phantom ship said to have been seen at various times by seamen, especially about the Cape of Good Hope. She appeared always under full sail, and was regarded as a warning of disaster. Captain Marryat's story The Phantom Ship is based on the tradition.
- Flying fish**. *Picture* (in color) 16-5785
- Flying-foxes**, destructiveness of, 1-318
 - Picture*, 1-319
- Flying-lemur**, *see* Cobego
- Flying lizards**, 14-5230
- Flying-squirrels**, 3-1132
 - Pictures*, 3-1129
- Foam**
 - Question about*. Why is foam white? 17-6176
- Foam-flower**, description, 17-6279
- Foch, Ferdinand**. Marshal of France, generalissimo of the Allied armies, 1918; born, Tarbes, 1851. Played an important rôle at the Battle of the Marne, when commanding an army corps. Presented Armistice conditions to German representatives.
- Fodder**
 - Forage plants, 7-2409-12
- Fog**
 - effect on sound, 2-586
 - how formed, 8-2922
 - Questions about*
 - What causes a fog? 17-6285
 - Where does the fog go when it clears up suddenly? 3-981
 - Why does a fog deaden sounds on the sea? 4-1451
- Fogg, Phileas**, hero of Verne's Around the World in Eighty Days, 12-4235-44
- Foley, John Henry**, British sculptor, 13-4854
- Folk dances**, *see* Dancing
- Folklore**, European, in Middle Ages, 1-299-300
 - See also* Fairy tales
- Follen, Eliza Lee**, *see* Poetry Index for poem and note
- Follow my leader**, game, 3-1029
- Followers of the golden age**, * 12-4327-36
- Fonck, René**, French aviator, 17-6292
- Fondant**, recipe for, 11-3856
- Fontainebleau, Château of**, 18-6495
- Fontainebleau school of painting**, 7-2370
- Foochow**. Chinese port trading in cottons, timber, paper, tea, matches, spices, cereals and ores.
- Food**
 - * Bread by which we live, 7-2423-25
 - * Food and its uses, 6-2185-88
 - * Meat as a food, 7-2567-69
 - * Nature's wonderful food (milk), 7-2323-26
 - average diet amounts, 6-2188
 - calories needed daily, 18-6694
 - conditions affecting quantity needed, 6-2188
 - containing sugar, 10-3416
 - different kinds needed, 6-2185-88
 - * digestion of, 6-2083-86
 - map of fruits, nuts, cereals, 19-7247
 - not needed by tired person, 12-4503
 - prices of foods compared, 7-2423
 - sources, 7-2531-36
 - supply
 - insufficient for living creatures produced, 13-4827
 - of world, 14-5225
- See also* Grains; Milk
- For list of main articles, *see* 20-7624-26
- Questions about*
 - Who started the idea of cold storage? 5-1607
 - Why do we cook the food we eat? 4-1450
 - Will the world's food supply ever run short? 14-5225

GENERAL INDEX

Food (continued)

- Pictures*
 diagram of various foods, 6-2185
 plants yielding food (in color) 8-2997-3000
- Fools, Court**, origin and history, 19-7216
Poem about. Fool's Prayer, by E. R. Sill, 2-488
- Fool's parsley**, 14-4976-77
Picture, 14-4977
- Foot**, *see* Feet
- Foot-binding**, in China, 2-436
- Football**, American game, history and description, 19-6960-61
- Footner**, Hulbert, Canadian novelist, 15-5369
- Footpaths in the air**, * 1-27-41
- Footprints**, how to follow, 3-1024
- Footstool**, directions for making, 6-2263-64
- Forbes**, Captain "Bully," 11-3920
- Forbes**, J. Colin, Canadian painter, 10-3700
- Forbidden City**, part of Peking, 2-434
- Force Bills**. By the United States Congress, in 1833, to meet nullification threats by certain states, a bill granting the President power to execute the tariff laws by force if necessary; in 1871 the Enforcement Act, or the Ku Klux Act, was passed giving the President power to suppress violations of the XIV Amendment; in 1890 an act providing for Federal supervision of elections passed the House but failed in the Senate.
- Ford**, Edward Onslow, English sculptor, 13-4856
Picture of statue, Peace, 13-4855
- Ford**, Henry
 and division of labor, 14-5246
 development of his automobile industry, 19-7208, 7210
Picture, portrait, 19-7201
- Fore and aft**, meaning of term, 14-5002
- Foreau**, French painter, 8-2856
- Forecastle** of a ship, 14-5004
- Foreshortening**. A representation of a figure or part of a figure according to the laws of perspective so that it diminishes in actual extent according to the angle at which it is seen, but conveys the impression of its entire length. For examples see figures in the painting on 3-822.
- Forest-flies**, account of, 17-6422
- Forest rangers**, U. S., duties of, 8-2806, 2808
Pictures, 8-2805-12
- Forests and forestry**
 * Forest and its guardians, 8-2803-10
 * Forests, woods and deserts, 7-2415-16
 conservation of forests, 8-2803-04
 Act of 1891, United States, 8-2804
 finding your way in forests, 4-1285
 fires, control of in U. S. national forests, 8-2805-06, 2808
 in early times, 7-2415
 in mythology, 9-3237
 influence of temperature, 4-1281
 National forests, U. S., 8-2803-12
 use and need for saving, 8-2680
 New Zealand, 7-2573
 trees that die, number of, 11-4095
 value of forests, 7-2416; 11-4094-95
See also Trees
Poem about. Forest Hymn, by W. C. Bryant, 10-3741
- * *Pictures*, 7-2415-22; 8-2803-12
- Forests, Petrified**, *see* Petrified forests
- Forests, woods and deserts**, * 7-2415-22
- Forget-me-not**, plant
 called scorpion grass, 16-6012
 description, 16-5880
 drooping, description, 18-6665-66
 false, description, 18-6665
 legend about, 13-4875
 of mountains, description, 18-6665
Pictures
 drooping forget-me-not, 18-6657
 false forget-me-not, 18-6657
Pictures (in color) 14-4992; 15-5612
 mountain forget-me-not, 15-5601
- Forkbeard**, fish. *Picture* (in color) 16-5784
- Forks**, history, use and manufacture, 4-1205-13
Pictures of manufacture, 4-1205-13
- Formaldehyde** (CH₂O). Dissolved in water, is used as a powerful disinfectant.
- Formalin**, remedy for oat smut, 5-1852
- Formicarium**, case for ants, 12-4264
- Formosa**, island, acquisition by Japan, 2-566
- Fort Carolina**, Huguenot colony in Florida, 1-246

- Fort Dearborn**, on site of Chicago, history, 19-7106
Picture, model of (gravure), 19-7114
- Fort Donelson**, attack on, 1862, 7-2433
- Fort Duquesne**
 Braddock's expedition against, 1755, 3-780-82
 Virginia's expedition against, 1754, 3-780
- Fort Frontenac**, built by Frontenac, 1673, 2-683
 on site of Kingston, 6-1958
- Fort Garry**, Manitoba, and Riel rebellion, 4-1489
 attack on, 1862, 7-2433
- Fort Marion**, St. Augustine, note and picture, 18-6828
- Fort Monroe**. A United States military post situated at Old Point Comfort, Virginia, and commanding the entrance to Hampton Roads. Jefferson Davis was confined here.
- Fort Moultrie**. A fort situated on Sullivan's Island at the entrance to the harbor of Charleston, South Carolina, noted for its defense against the British during the Revolutionary War.
- Fort Nassau**, now Albany, N. Y., founded 1615, 2-550
- Fort Norman**, Canada, oil discovered, 7-2560
- Fort Resolution**, on Great Slave Lake
Pictures, 7-2559
- Fort Stanwix**, now Rome, N. Y., where first U. S. flag was used in battle, 19-7183
- Fort Sumter**, Charleston, S. C., attack on, 1861, 7-2432
- Fort Ticonderoga**, *see* Ticonderoga
- Fort Washington**, on Hudson River, captured by Howe, 4-1166
- Fort William**, Ontario, at head of Lake Superior, 6-1956
- Fort William Henry**, on Lake George
 Indians massacred English, 3-782
- Fort Worth**. Centre of a large agricultural and stock-raising district in Texas, with meat packing and cotton industries.
Pictures
 Federal helium plant, 14-4891
 Main St., 14-4898
- Forth Bridge**, Scotland
 building of, with pictures, 1-30-32
 description, 1-28
Picture, 1-27
- Fortuna**, goddess of luck, 9-3234
- Fortunes**, telling, for Hallowe'en, 18-6522
Question about. Can people tell our fortunes? 15-5518-19
- Fortunes of Nigel**, by Scott, note on, 11-4070-71
- Fortuny y Carbo**, Mariano José Maria Bernardo, Spanish painter, 8-2854
- Forum of Trajan**, Rome, 4-1200
- Fosberry**, Ernest, Canadian painter, 10-3709
- Fossano**, Ambrogio da, *see* Borgognone, Il
- Fossils**
 how made, 1-94
 in layers or strata, show history of life, 2-631-34
 study of, by Cuvier, 2-590
See also Animals—history
Pictures, showing history, 2-633
 Cambrian period, 3-907
 Carboniferous period, 4-1297
 Cretaceous period, 5-1661
 Devonian period, 4-1177
 Eocene period, 5-1785
 Jurassic period, 5-1547
 Pliocene and Pleistocene periods, 6-1926-27
 Silurian period, 3-1033
 Triassic period, 4-1403
- Foster**, Stephen Collins, song-writer, life of, 18-6511
See also Poetry Index, for poems and notes
- Foucault**, Jean Bernard Léon, experiment with pendulum, 8-2917
- Founding of the nation**, * 4-1429-39
- Fountain of Youth**, in mythology, 9-3236
- Fountain-pens**, how to clean, 15-5335
- Fountains**
Poem about. The Fountain, by J. R. Lowell, 2-607
Picture, near Florence (gravure) 5-1742
 fountains, characters in mythology, 9-3236
 Fonquet, Jean, father of French art, 4-1227
 Four centuries in Europe, * 18-6489-6502
 Four-o'clock bird, 9-3138
- Fourth of July**
 observance, 6-2003
Picture, scenes in New York City, 6-2095

GENERAL INDEX

Fowler, Daniel, Canadian painter, 10-3700
Fowler, John, designed Forth Bridge, 1-28
Fowler's service tree, name for mountain ash, 12-4382
Fox, Charles James, English statesman; born, London, 1749; died there, 1806. Rival of William Pitt. Introduced the India Bill, 1783; supported the cause of the American Colonies in Parliament in the Revolution.
Fox, George, English itinerant preacher, founder of the Society of Friends; born, Fenny Drayton, Leicestershire, England, 1624; died, 1691.
Fox and geese, game, with checkers, 15-5338
Fox in the hole, game, 3-1153
Foxes
 * account of, 2-602
 colors of, in fur-farms in Canada, 13-4693
 fables about
 Fox without a tail, 12-4487
 Reynard the fox, 8-2965-66
 fables about, by Aesop
 The fox and the crow, 2-540
 The fox and the goat, 6-1969
 The fox and the grapes, 11-3986
 The fox and the wolf, 15-5538
 stories about
 Bear in the well, 18-6480
 Fox repaid in his own coin, by Chaucer, 13-4768
 Hungry fox and the kitten, 7-2352
Pictures, 2-601, 603; 14-4900
 silver fox, 13-4693, 4695
Foxgloves, flowers, 17-6130
 note on, 17-6127
Pictures, 3-1013; 17-6127
 with visiting bee (in color) 17-6074
Picture (gravure) 19-7178
Foxhounds, hunting dogs, 2-718
Picture (gravure) 2-716
Foxtail, grass, 10-3521, 3661
 floating foxtail, 10-3654
Pictures, 10-3661
 floating foxtail, 10-3654
 magnified (in color) 10-3521
Fra Angelico of Fiesole, *see* Angelico, Fra, of Fiesole
Fra Filippo Lippi, *see* Lippi, Fra Filippo
Fractures
 first aid for, 13-4847-48
Fragnard, Jean-Honoré, French painter, 5-1881
Picture, Portrait of boy as Pierrot (gravure), 5-1879
Fram, ship, in arctic exploration, 13-4715-16
Frames of pictures, how to make, 4-1393-94
France, Anatole, A most distinguished French novelist, poet and literary critic; born, Paris, 1844; died, 1924.
 extract from M. Pigeonneau, 18-6719
Pictures
 portrait, 18-6719
 portrait by Carrière, 8-2709
France
 agriculture, *see* Agriculture—France
 architecture, *see* Architecture, French
 art, *see* Architecture, French; Painting, French; Sculpture, French
 boundaries, 11-3814
 canals, 11-3816, 3818; 13-4787
 Christmas customs, 17-6102-03
 cities, 11-3820-21
 climate, 11-3814
 colonies, 11-3823-24
 American, 11-3823
 compared with English, 3-777-78
 * early exploration and colonization, 2-677-83
 islands off Newfoundland, 3-784
 See also New France (Canada)
 Asian, 11-3823
 Haiti, 19-1100
 in Africa, 10-3572; 18-6808-11
 in India, struggle with English, 8-2826
 in West Indies, 19-7099-7104
 islands in Melanesia, 9-3302
 islands in Polynesia, 9-3298
 Syria, 18-6678
 * description, 11-3813-22
 education, 11-3821, 3824
 emblem, fleur-de-lis, 3-1115
 foreign relations with U. S. during the American Revolutionary and Napoleonic periods, 5-1702

France (continued)
 French Foreign Legion, 17-6285, 6288
 government, 11-3822-23
 local, 11-3823
 present constitution adopted, 1875, 10-3576
 States-General, or Parliament, before Revolution, 10-3564, 3566
 history (arranged chronologically)
 before Revolution
 * Roman occupation to French Revolution, 10-3429-40
 invasion of Northmen, 4-1436
 under Louis IX, 16-5818
 Hundred Years' War, 5-1682-84; 10-3433-34
 See also Gaul
 * Revolution, 6-2127-34; 10-3563-70
 and English history, 6-2101
 and French literature, 18-6715-16
 Bastille destroyed, 16-5741
 causes, 6-2101, 2127-28
 influence of American Revolution, 10-3564
 U. S., action of, 5-1702
 Pictures, 6-2126-33
 Napoleonic period
 * Napoleon and his conquerors, 6-2199-2208
 * Napoleonic Wars, 10-3570-72
 wars against Germany and Austria, 11-3966, 3968
 since Napoleon
 Republic established, 1848, 10-3573
 Second Empire and present Republic, 10-3573-76
 Franco-Prussian War, 11-3972
 World War, 11-3824
 industries, 11-3818
 language, *see* French language
 laws, Napoleonic Code, 6-2204
 legislature, 11-3823
 literature, *see* French literature
 maps, 10-3429; 11-3812
 mountains, 11-3814, 3816
 national emblem, the lily or fleur-de-lis, 17-6181
 painting, *see* Painting, French
 Parliament, *see* France—States-General;
 France—legislature
 population, 5-1606
 products
 agricultural, 11-3818
 minerals, 11-3818
 silk, 11-3818
 races of, 11-3821-22
 railroads, *see* Railroads—in France
 religion, time of Reformation, 10-3434
 rivers, 11-3816
 sculpture, *see* Sculpture, French
 social conditions
 before Revolution, 10-3563-64
 Middle Ages, 10-3432
 under Louis XIV, 10-3440
 songs of, and their writers, 10-3612
 The Marseillaise, 12-4472
 writing of, 3-1135; 10-3605
 stamps, rare, 16-5888
 States-General, or Parliament, formation of, 10-3433
 territory added since World War, 18-6458
 water power, 15-5430
 For list of main articles, *see* 20-7593-94
Pictures
 Paris (gravure), 11-3825-28
 See also all starred articles above
France and her neighbors, * 13-4699-4706
France in America, *see* Canada—history; French Canadians; New France; United States—history—colonial period.
Franceschi, Piero dei (Francesca Piero della), Italian painter, 2-699
Picture, Portrait of a Lady (gravure) 2-696
Franchise, Elective, The right of suffrage, that is, of voting at public elections.
Francia, José, ruler of Uruguay, 19-6982
Francis of Assisi, St.
 life and teachings, 6-1991
 cultivated forests, 8-2804
 Giotto's frescoes of his life, 2-698
 influence, 2-692, 697
Pictures
 preaching to birds, by Giotto, 6-1990
 death of the Saint, by Giotto (gravure), 2-696
Francis II, emperor of Holy Roman Empire gave up crown of Holy Roman Empire, 11-3966, 2968

GENERAL INDEX

- Francis I**, emperor of Austria, *see* Francis II, emperor of Holy Roman Empire
- Francis I**, King of France, soldier and patron of the artists of the Renaissance; born, Cognac, 1494; died, Rambouillet, 1547; he reigned from 1515.
 court of, 10-3434
 influence on architecture, 18-6495
 sent expeditions to America, 2-677-79
- Francis II**, king of France
 husband of Mary Stuart, 10-3434
- Francis Joseph** (1830-1916). Emperor of Austria, king of Bohemia, and apostolic king of Hungary. He came to the throne in 1848 and reigned until his death.
- Franc, César**, French musical composer, 19-7152
- Franco-Prussian War**, 10-3573; 11-3972
- Frankolins**, variety of partridge, 12-4364
Picture, 12-4367
- Frankfort**. Capital of the state of Kentucky, is 55 miles by rail east of Louisville and is in the heart of the "Blue Grass" region. There are manufactures of lumber, flour, chairs, shoes, tobacco, hemp, glass, etc.
- Frankfort-on-Main**, Germany, 12-4170
- Frankincense**
 from turpentine, 9-3151
 Java, name for benzoin, 9-3152
- Franking privilege**. The right to send mail matter free of charge.
- Franklin, Benjamin**
 life and writings, 12-4447-50; 10-3487-88; 4-1248, 1250
 as fire chief, 9-3158
 discovered lightning is electricity, 4-1248-50
 invented instrument for storage of electricity, 16-5676
Pictures
 portrait, 10-3491
 portrait, in group, 4-1167
 bust by Houdon, 13-4703
 experimenting with lightning, 4-1249
 hauling paper to his shop, 12-4449
 honored at the court of France, 10-3486
 Martin portrait, 12-4448
 music stand, 12-4450
- Franklin, Sir John**
 life and arctic explorations, 8-2986-88
Pictures
 portrait, 8-2977
 portrait, in group, 8-2985
 final scenes of fatal expedition, 8-2989
- Franklin**, district of Canada, 4-1490
- Franklin, State of**, now Tennessee, 6-1908
- Franz Josef Land**, discovery of, 13-4712
 Jackson's exploration of, 13-4714
- Fraser, James Earle**, American sculptor, 14-4939
Picture
 End of the Trail, 1-266
- Fraser, John**, Canadian painter, 10-3700
- Fraser, Lovat**, English painter, 8-2860
- Fraser, Simon** (1776-1862). A great Canadian fur-trader and explorer. Discovered Fraser River, 1806. A partner in the Northwest Company. He refused a knighthood offered for his services as an explorer.
 explorations of, 12-4337
- Fraser, William Alexander**, Canadian author, 15-5372
- Fraser**. British Columbian river, named for the explorer Simon Fraser, the most famous salmon stream of Canada. Rising in the Rockies, it flows into the Pacific near New Westminster, and is navigable for about 100 miles, there being a great canning industry on its lower course; the river furnishes great facilities for transport of timber. 750 miles.
- Frauenhofer, Joseph von**, inventor, 16-5811
- Frauenhofer's lines**, in spectrum, 16-5811
- Fraunces' Tavern**, New York City
 Washington's farewell to officers there, 5-1696
- Freeze, John**, American sculptor, 14-4933-34
- Fréchette, Louis**, French Canadian poet, 8-2950; 14-5110
- Freckles**
Question about. What are freckles? 4-1450
- Frederick I**, Barbarossa, emperor of Holy Roman Empire
 in Third Crusade, 7-2587
 life and reign, 11-3962-63, 3967
 struggles with the popes, 11-3962
Picture, proclaimed king, 11-3967
- Frederick I**, king of Prussia
 founded schools, 11-3971
Picture, in a school-room, 11-3971
- Frederick II**, the Great, king of Prussia
 * life, 11-4043-49
 Carlyle's life of, 9-3312
 entertainment of Bach, 19-6916
 reign of, 11-3966, 3971
Pictures
 portrait, 11-4048
 welcomed by subjects, 11-3971
- Frederick III**, German emperor, 11-3972, 3974
- Frederick William I**, king of Prussia
 relations with his son, Frederick the Great, 11-4043-44
- Frederick William** (1620-88). "The Great Elector," who as Elector of Brandenburg (1640-88) secured the independence of Prussia from Poland.
Picture, portrait, 11-3969
- Free cities**. Cities or towns with government and laws of their own, forming each a state by itself. In the Middle Ages the towns of Northern Europe (Germany, etc.) in the Hanseatic League were generally free towns. Certain cities as parts of the German Empire were called imperial cities. The free cities that still hold their freedom are: Hamburg, Lübeck and Bremen. Up to 1866 Frankfort-on-Main made a fourth.
- Free-Soil party**. A political party in the United States, formed in 1848. It was opposed to the extension of slavery in such parts of the country as had not been formed into states. In 1854-56, with additions from certain other groups, it grew into the Republican party.
- Free speech**, Eliot's defense of against Charles I, 6-1976
- Free trade**. Trade without restrictions, as commerce between countries unhampered by customs-duties. In a more limited sense it is used for international trade free of all duties except such tariffs as will be enough to cover revenue and police.
- Freedmen's Bureau**. The popular name for the Bureau of Refugees, Freedmen, and Abandoned Lands, created in 1865 by the War Department of the United States and existing until 1872. Its function was to look after the welfare of the emancipated negroes in such matters as necessities of life, land provision, education, civil rights, etc.
- Freedom**, *see* Liberty
- Freedom of a city**. Privilege enjoyed by a free-man of a city; honorary freedom of a city or borough is given from time to time to persons of distinction.
- Freeman, Edward Augustus**, historian, 9-3205
Picture, portrait, 9-3201
- Freeman, Mrs. Mary E. Wilkins**, American author, 13-4819
- Freemasonry**. A modern name for the principles of the Order of Freemasons. The order has an elaborate system of symbolic ritual, many grades of officers, and a number of secret signs and passwords. It is founded upon the principles of truth, charity, brotherly love and mutual assistance.
- Freetown**, capital of Sierra Leone, 9-3056
Picture, 9-3055
- Freezing**
Questions about
 Why does shallow water freeze first? 8-2874
 Why is it that the sea does not freeze? 11-3978
- Fremiet, Emanuel**, sculptor, 13-4706
Picture, statue of Joan of Arc (graveure) 16-5813
- Fremont, John Charles** (1813-90). American explorer, soldier and politician born in Georgia. Between 1842 and 1853 he made five exploring expeditions into the western country, and took part in the capture of California; U. S. Senator from California, 1850-51; Republican candidate for the presidency, 1856. In 1861 he was appointed major-general but his military career was not a success. From 1878 to 1882 he was governor of Arizona Territory.
 explored Rocky Mountains, 6-1918
 presidential candidate, 7-2429
- French, Daniel Chester**, American sculptor, 14-4937-38
 statue of Lincoln, 5-1542

GENERAL INDEX

French, Daniel Chester (continued)

Pictures

Abraham Lincoln (statue), 3-1038
The Angel of Death and the Sculptor, 14-4937

Minute man, at Concord, 4-1174

French, John, Earl of Ypres. English field marshal, commanded British Expeditionary Force during first months of the World War. Born, Ripple, Kent, 1852; died, 1925.

French. Inhabitants of France, and a mixture of all three types of the Caucasian division of man. The central and southern provinces are mainly Celts of Alpine stock, while part of the south is inhabited by Basque Iberians of Mediterranean stock. In the north and northeast are descendants of Teutonic invaders of the Nordic stock, but most of the Teutons have been absorbed by the Alpine races.

French Academy, founding of, 18-6711

French and Indian wars, 3-782-84

King George's War, 3-779

King William's War, 3-778

Queen Anne's War, 3-778-79

See also United States—history—colonial period; Canada—history; New France—history

French architecture, see Architecture, French

French art goes out of doors, * 7-2475-82

French Canadian cattle, description, 4-1262

Picture (gravure), 4-1268

French Canadians

* French in Canada, 8-2949-56

and fur trade in Canada, 12-4337-39

literature, 8-2950; 14-5110; 15-5367

de Gaspé and Gérin-Lajoie, 14-5106

song, Chant National, by Basile Routhier, 17-6256

Pictures, 8-2948-56

French Equatorial Africa, 18-6810

French Foreign Legion

Question about. What is the French Foreign Legion? 17-6285, 6288

French Guiana, see Guiana, French

French in America, see Canada—history; French Canadians; New France; United States—history—colonial period

French language

beginnings of, 10-3432

in England, in Norman times, 5-1564

French leave, meaning of expression, 13-4596

French Lessons and Rhymes

lessons

at the hotel, 14-4947-48

buying presents for home, 15-5528

day at Versailles, 16-8862

a doll and a quarrel, 18-6566

familiar things in a schoolroom, 5-1764

familiar things on a motor ride, 8-2888

first day in Paris, 14-5126

hurrying to the boat, 12-4490

in sight of the sea, 12-4402

little visitor, 19-6954

lost key, 16-5754

man who disappeared, 19-6866

new governess, 18-6464

noise in the chimney, 17-6374

old apple woman, 19-7248

on the way to Paris, 13-4757-58

party on the boat, 13-4592

picture stories, 11-3838, 3998, 4064

ride in the train, 12-4276

shopping, 15-5330

tea-party, 14-5198

visit to fairyland, 18-6846

visit to the Louvre, 17-6312

We go to a party, 17-6990

nursery rhymes, in French, 14-5132; 18-6756

Sur le pont d'Avignon, 6-2248

stories

L'Amour rit aux de clefs, 13-4758

La chance de Jacques le Simple, 14-4948

Comment Gotham acquit une mauvaise réputation, 12-4489

La jeune fée du Lac Van, 6-2308

Le malin fermier et le nain, 5-1666

La plus sage fille du Wessex, 11-4442

Le roi, le noble et le paysan, 11-4144

French literature

* history, 18-6559-65, 6711-19

See also France—songs; French Canadians—literature

French painting, see Painting, French

French Revolution, see France—history—Revolution

French seams, how to make, 1-338

French West Africa, 18-6810

Freneau, Philip, author, 13-4629

Fresco, painting, definition, 2-697

Freitag, Gustav, German author, 17-6414-15

Picture, portrait, 17-6415

Friar's balsam, 9-3152

Friction, causes heat, 1-307; 11-3840

Friday, consecrated to Venus, 9-3227

how named, 12-4203

Friedland, Battle of. Victory of Napoleon, with 70,000 French, over 55,000 Russians and Prussians on the river Alle in 1807. Ten days later Napoleon concluded the treaty of Tilsit with the Tsar Alexander on a raft on the Niemen.

See also 10-3571

Picture, by Meissonier, 10-3569

Friend to fisher folk, * 7-2495-2500

Friendly Islands, see Tonga Islands

Friendship

Poems about

My Old Friend, by A. C. Benson, 12-4271

Old Friends, 17-6378

See list, 20-7674-75

Question about. Should we like one friend more

than another? 2-461

Friesoeck, Frederick C., American painter, 10-3455

Frietchie, Barbara (1766-1872). Heroine of Whittier's poem of same title.

Frigate birds

* account of, 11-3884-85

Picture, 11-3883

Frigates, ships, 11-3918

Pictures, 11-3915, 3920

Frigga, goddess, wife of Odin, 12-4203

Fringed cup, plant, description, 19-6930, 6932

Fringed polygala, see Polygala, Fringed

Fringillidae, family of birds, 14-5023-24

Fritillary, flower, description, 16-5876

note on, 16-5873

Picture, 16-5873

Probisher, Sir Martin, English mariner

* life and explorations, 14-4960

search for Northwest Passage, 8-2982

story of arctic gold, 13-4708

Picture, portrait, 8-2977

Proebel, Friedrich Wilhelm August, German educator, 14-5253-54

Picture, portrait, 14-5247

Frog-hoppers, insects, 17-6072, 6077

Frogbit, plant, 16-5871-72

Pictures, showing growth by buds, 4-1277

Frogfish

red frogfish, 16-5899

Pictures (in color), 16-5785

red frogfish, 16-5788

Frogmouths, birds, account of, 9-3374

Picture, 9-3367

Frogs

* life history of, 1-256, 258; 15-5453-54, 5456

fables about, by Aesop

The fox and the frogs, 11-4144

The frogs who wanted a king, 2-539

how differ from toads, 15-5454

skeleton of, 5-1560

toy, made from wishbone, 15-5595

Questions about

Can a frog live inside a stone? 4-1231

Has there ever been an actual shower of frogs? 10-3581

Where should we look for the ears of a frog? 10-3174

Pictures, 15-5452-53, 5455

Frog's bit, see Frogbit

Froissart, Jean. A celebrated French medieval chronicler of western European history; born, Valenciennes, 1337; died, Chimay, Belgium, 1410.

chronicles of, 5-1683; 18-6562-63

Frolic, ship, beaten by Wasp, 5-1704; 17-6330

Froment, Nicholas, painter of Avignon school, 4-1227

Fromentin, Eugène, French painter and author, 6-2982

Frontenac, Comte Louis de Buade de (1620-98).

The greatest of the governors of New France, sided with the Algonquins against the Iroquois. Encouraged French exploration in the West.

First period in Canada, 1672-82; second period, 1689-98

built Fort Frontenac, 2-682

GENERAL INDEX

Frost, Robert. American poet; born, San Francisco, 1875.

Frost

* Master Jack Frost, artist, 14-4904-12
formation of, 8-2922

Poems about

Frost Looked Forth, 6-2148

Jealous Jack Frost, by Frederic E. Weatherly, 17-6108

Questions about

How does frost help the farmer? 11-4135

Why does the thaw burst the waterpipes? 4-1450

* Pictures, 14-4905-12

Frostbite, treatment for, 16-5980

Frostfish, name for scabbard fish, 16-5900

Froth-flies, insects, 17-6072, 6077

Froude, James Anthony. English historian; born, Devonshire, 1818; died, 1894.

habit of inaccuracy, 9-3205

Fructose, sugar from fruit, 10-3416

Fruit

* Figs and dates, 6-2156-62

* kinds, and uses to plant, 3-1014, 1016

* Most important fruits, 6-2057-68

how formed, 2-510

map, showing sources, 19-7247

methods of improving varieties, 15-5385

preservation of, 11-4084

reason for stones, 3-978; 7-2362

United States production, 8-2680

use for decoration, 11-4019

value as food because of salts, 6-2187

varieties, dry and soft, 3-1016

wild, 11-4019

See also names of fruits

Question about. What is the difference between a fruit and a vegetable? 13-6693

* Pictures, 6-2056-68, 2156-61

cross sections, showing seeds, 2-507

tropical (in color), 8-3000

* wild fruits (in color), 11-4021-28

Fruit culture, grafting, account of, 16-5959

Fry, Elizabeth, 7-2296

* life of, 16-5699-5706

Fuchsia, plant, description, 19-7171

Picture, flowers of (graveure), 19-7174, 7180

Fudge, recipes for, 2-752

Fuel

for outdoor fire, 12-4376

See also Coal

Fuel foods for body, 6-2185-88

Fugitive Slave Law, difficulty of enforcing, 7-2428-29

Fuji-Yama, Japanese mountain

description, 2-568

height of, 7-2313

position and height, 2-560

Pictures, 2-560; 7-2317

showing nearby bridges, 1-26

Fulke-Greville, Sir, *see* Poetry Index for poems and notes

Fuller, George. American portrait, landscape and figure painter; born, Deerfield, Massachusetts, 1822; died, Boston, 1884.

life and work, 9-3333-34

Picture, Winifred Dysart (gravure), 10-3461

Fuller, Margaret, life of, 13-4632

Fuller faucet, 10-3766

Fuller's earth. A clay-like substance found deposited in certain parts of the world and used for "fulling," or cleansing wool and cloth. It has the properties of absorbing grease and clarifying oil. It is employed now for filtering mineral oils and decolorizing vegetable oils.

Fulmars, birds. *Picture* (in color), 9-3281

Fulton, Robert

* inventions, including steamboat, 17-6398-6401
offered Napoleon a submarine, 1-197

Pictures

portrait, 17-6397

with Napoleon, 17-6401

Fumitory, flower. *Pictures* (in color), 14-4993; 15-5611

Funchal. Capital, cathedral city, and port of the Portuguese island of Madeira. Famous as a health resort, it is also a coaling station.

Fundamental Constitutions, form of government, proposed for Carolina, 2-553

Fundy, Bay of

tides

high tides, 1-106; 7-2542

possible power from tides, 18-6558

Fünen. Second largest of the islands of Denmark; area, 1,133 square miles; capital, Odense.

Fungi

* account of, 10-3722-24

and plants, 1-333

feed on other life, 3-882

growing of, 4-1356

number of spores, 13-4826

wheat rust, account of, with pictures, 5-1757, 1762

See also Mushrooms

Question about. What makes a fairy ring? 4-1356

"Funnybone," account of, 5-1805

Funtumia elastica, tree, produces rubber, 8-2790

Fur-raising industry

* Fur-farming in Canada, 13-4693-96

Fur trade

Canadian

* history and development, 12-4337-42

beginnings, 2-679

Frontenac compelled Indians to sell to French, 2-682-83

monopoly of de Monts, 2-679-80

of Hudson's Bay Co., 12-4338-40

early trade, western U. S., 18-6426

Furies, ministers of vengeance, 9-3238

Picture by Burne-Jones, 9-3225

Furnaces

Pictures, for making steel, with notes, 6-1941-45

Furnaces, Electric, *see* Electric furnaces

Siemen's invention, 19-7207

Furniss, Harry, British illustrator

Pictures

illustrating Alice in Wonderland, 3-1088-98

illustrating A Christmas Carol, 17-6114-21

Furniture

* Art of furniture-making, 18-6767-75

how to know woods in, 16-5982

in American colonies, 18-6772, 6774

in England, 18-6768-72

refinishing, directions for, 4-1392

rustic, how to make, 13-4736

toy, directions for making, 5-1765-66

upholstering, directions for, with pictures, 12-4373-74

veneered and solid, 4-1284

See also Chairs

Question about. Why does furniture make a noise at night? 9-3100

* *Pictures,* 18-6767-76

made by Duncan Phyfe, 18-6775

Furniture, Box

directions for making, 3-893-94; 6-2262-64; 7-2377-79; 8-2875-79

Louise Brigham's development of, 3-891-93

Pictures, 3-891-93; 6-2262-63; 7-2378-79; 8-2875-79

Furze, flower

Picture, 13-4870; (in color) 14-4983

Fuse

Question about. What is meant by a fuse in talking about electricity? 6-2250

Fuse-boxes, explanation, 16-5675

Fust, John, and Gutenberg, 9-3383-84

Picture portrait, 9-3383

Future life, *see* Immortality

Fyke Nets, in fishing, 11-4052-53



Gabelhorn, Mount. *Pictures,* 7-2315

Gaddi, Taddeo, Italian painter, 2-698

Gadsden flag, presented to Congress by Christopher Gadsden, 19-7182

Gadsden Purchase. A tract of 45,535 square miles of land purchased by the United States from Mexico in 1854 for the sake of settling disputes over boundaries. It lies in what is now Arizona and New Mexico. The treaty was negotiated by James Gadsden, then minister to Mexico.

Gaff, part of a ship, 14-5004

explanation of, 11-4086-87

Gage, Thomas, made governor of Massachusetts, 4-1162

Gagen, Robert F., Canadian painter, 10-3703-04

GENERAL INDEX

- Gagnon, Clarence**, Canadian painter
paints habitants, **10-3703**
Picture (gravure), Quebec Village Street,
Winter, **10-3707**
- Gaillardia**, flower, **18-6660**
Picture (gravure), **19-7180**
- Gaini cattle**, India, description, **4-1262**
- Gainsborough, Thomas**, English painter
* life and work, **6-2109-11; 7-2331-32**
as a landscape painter, **6-2230**
Pictures
 portrait, **7-2327**
 portrait, in group, **7-2333**
 Baillie Family (in color) **7-2339**
 Blue Boy (in color) **7-2340**
 Lady Georgiana Spencer (gravure) **6-2118**
 Marshall Family (gravure) **6-2119**
 Miss Haverford (gravure) **1-68**
 Miss Linley and Her Brother (gravure) **1-68**
 Mr. Poyntz (gravure) **6-2114**
 Painter's Daughters (in color), **7-2340**
- Galago**, animal. *Picture* (gravure), **1-212**
- Galahad, Sir**, knight of the Round Table,
19-6949-52
Poem about, Sir Galahad, by Lord Tennyson,
3-1006
Pictures, **19-6947, 6951**
- Galápagos Islands**. Group of Pacific islands
700 miles west of Ecuador, of which they form
part. They are remarkable for peculiarities of
the fauna and flora.
- Galatz, Rumania**, **14-4922**
- Galax**, plant, description, **19-7088-89**
- Galba, Servius Sulpicius**, Roman emperor,
5-1862-63
- Gale, Norman**, see Poetry Index for poem and
note
- Gale, Zona**, author, **14-5011-12**
- Galen**, Greek physician, **8-2724**
Picture, portrait, **8-2721**
- Galena**, use in radio, **17-6366**
- Galena and Chicago Union Railroad**, **19-7107**
- Galicia**. Formerly the largest province of the
Austrian Empire, but now part of Poland. It is
famous for its salt-mines and petroleum de-
posits. Lemberg and Cracow are the chief
towns.
 See also **17-6192, 6194**
 Picture, oil wells, **13-4548**
- Galicia**. Old northwest province of Spain, con-
taining Corunna, Ferrol, Lugo, Vigo, Pontevedra
and the cathedral city of Santiago.
- Galilee, Sea of**. Lake in northern Palestine,
lying 680 feet below sea-level. Sixty-four square
miles in extent, it is fed by the Jordan, and
abounds in fish; the ancient city of Tiberias and
the ruins of Capernaum and Chorazin stand on
its shores.
- Galileo**, astronomer
* life and work, **1-279-82**
 and invention of telescope, **13-1671**
 discovered dark spots on sun, **9-3173**
 discovered law of falling bodies, **1-280**
 discovered Saturn's rings, **10-3411-12**
 invented improved microscope, **13-1669**
 invented pendulum, **1-279**
 invented thermometer, **15-5573**
 trial before Inquisition, **1-280, 282**
 tried to measure speed of light, **10-3473**
Pictures
 portrait, **1-281**
 on trial before the Inquisition, **1-279**
 scenes from his life, **1-285**
- Gall, St.**, missionary from Ireland, **8-2930**
- Gall-flies**, account of, **10-3580**
- Gallatin, Albert**, American statesman
* life and work, **10-3489**
Picture, portrait, **10-3491**
- Galle, Johann Gottfried**, first saw planet Nep-
tune, **10-3414**
- Galleasse**, ship, description, **11-3916**
- Galleon**, ship, description, **11-3916**
- Galley of a ship**, **14-5001**
- Galley-ships of Greece and Rome**, **11-3912, 3914**
- Gallinules**, birds
 account of, **11-4120**
 name given to marsh-hens, **14-5020**
Pictures
 Florida gallinule (in color) **9-3283**
 violet gallinule (in color) **10-3624**
- Gallipoli**. Turkish port which gives the Galli-
poli Peninsula its name. Here the Allies in the
World War failed in their blow at Turkey.
- Galloway**, breed of cattle, **4-1262**
Picture (gravure) **4-1268**
- Galsworthy, John**. English novelist and writer
of plays; born, Coombe, Surrey, 1867.
 See also **11-3899**
- Galt, John**, author, **11-3894**
- Galton, Sir Francis**, and heredity, **15-5614**
 experiments in sound, **18-6439**
- Galvani, Luigi (or Aloisio)**, Italian scientist
 experiment with frog's leg and electricity,
 4-1250
 Picture, portrait, **4-1243**
- Galvanometer**, mirror, explanation, **16-5801-02**
- Galveston**. Cotton port on an island off the
coast of Texas.
- Galway**. County of Connaught; area, 2,370
square miles; capital, Galway. In the west is
Connemara, one of the wildest and most beau-
tiful parts of Ireland.
- Gama, Vasco da**, Portuguese explorer
 in South Africa, 1497, **9-3048**
 voyage round Cape of Good Hope, **1-89**
 Picture, portrait, **1-89**
- Gambia, Africa**, **9-3056**
- Gamboge**, a gum resin, **8-2913**
Picture of plant producing (in color), **8-2999**
- Games**
 anagrams, **18-6520**
 animal
 "What is its name?" **8-2880**
 "Zoo-guess," **5-1776**
 ball
 bouncing and keeping score, **2-519-20**
 pass ball, **9-3122**
 See also Ball games
 basket race, **7-2517**
 bean-bag throwing, **9-3116-17**
 blindfold games, **18-6519**
 botanical puzzle game, **16-5771**
 bowls, **4-1400**
 checkers, **15-5338**
 chess, **5-1771**
 cotillion, **7-2517**
 cricket, **14-5116**
 curling, **14-5114-15**
 digit game, with wheel, **2-521-23**
 domino games, **12-4375**
 driving match, **7-2517**
 egg and fan race, **7-2517**
 field hockey, how to play, **16-5885-86**
 football, American game, **19-6960-61**
 for parties, **3-903**
 Christmas Gymkhana, **7-2517**
 Hallowe'en, **18-6522**
 "Jenkins says," **6-2167**
 for tiny children, **8-2743-45**
 fox and geese (with checkers), **15-5338**
 fruit and vegetable stand, **4-1505-08**
 game of thinking, **8-2960**
 golf for boys and girls, **9-3247-50**
 history, in colonial America, **3-975-76**
 hoop games, **12-4496**
 hopscotch, with cards, **4-1510-11**
 ice-hockey, **14-5113-14**
 jump-peg, how to make and play, **1-339**
 lacrosse, **14-5115-16**
 marble games, **17-6389**
 "Match mine," **7-2520**
 moral effect of, **10-3636-37**
 outdoor, **3-1029, 1153; 6-2164; 10-3769; 11-3855**
 beach, **17-6257-58**
 boys', **18-6523**
 For special game, look under its name in
 main alphabet
 pocket game, **4-1508-10**
 progressive games, **8-2885**
 proverb games, **15-5598**
 relay race, **9-3121**
 rhyme-making, **18-6518**
 ring-toss, **14-5117**
 snap, card game, **15-5514**
 stickerchief, **11-3859**
 "Stop," **7-2522**
 swimming games, **8-3024**
 telling stories with sticks, **1-231**
 tennis, **13-4621-22**
 three deep, **7-2385**
 train, to play on, **12-4502**
 "What is it?" **8-3023**
 "What is wrong?" **18-6639**
 "Where is it?" **6-2168**
 "Who says?" **5-1647-53**
 "Why is it?" **8-2742**

GENERAL INDEX

Games (continued)

For list of main articles, see 20-7639-44
See also Puzzles; Tricks; also names of games,
as Baseball

Games, Educational

colors, to teach
animai games, 5-1647-53
making a dictionary, 6-2052-53
drawing, to teach
drawing puzzles, 8-2749
matching pictures, 8-2751-55
geography, to teach, 9-3375-76
"Where is it?" 6-2168
numbers, to teach (arranged in order of difficulty)
match mine, 1-347-48
keeping score, 1-347
bouncing ball, score for, 2-519-20
digit game, with wheel, 2-521-23
basket-ball score, 3-1018-21
fruit and vegetable stand, 4-1505-08
pocket game, 4-1508-10
hopscotch, 4-1510-11
score-keeping, 5-1893-97
telling time, 6-2267-69
pocket game, 6-2270
beginning subtraction, 6-2272
subtraction, 7-2523-24
progressive games, 8-2886
practice with digits, 9-3123
weighing, 9-3125
spinners, 9-3126
counting, 9-3255
measuring, 9-3256-58
weighing, 9-3256-58
jumping game, 10-3511-12
playing cafeteria, 10-3515-16
measures, 10-3517-18
making change, 10-3633-34
reading, to teach (arranged in order of difficulty)
reading words, 4-1287-94
fruit and vegetable stand, 4-1505-08
about animals, 5-1647-53
action words, 5-1893-97
making a dictionary, 6-2049-54
sound games with words, 6-2055
making a word-file, 7-2386-89
practice games, 7-2389-91
page line game, 7-2390
sound games with words, 7-2519-22
testing games, 8-2747-48
sound games with words, 8-2883-84
stops and commas, 19-7080
harder sound games, with words, 9-3258-59
reading money, 9-3256-58
time, learning to tell, 6-2267-69
writing, to teach (arranged in order of difficulty)
writing words, 4-1290-94
fruit and vegetable stand, 4-1505-08
making a dictionary, 6-2049-54
practice game, 7-2383-84
three deep, 7-2385
making a word-file, 7-2386-89
testing games, 8-2747-48
matching pictures, 8-2751-55
relay race, 9-3122
digits, 9-3123
to distinguish objects, weight, sound,
1-345-47, 350
to learn cloth materials, 1-349-50
word to parents, 10-3636-37
Games, Public
in ancient Rome, 4-1198
Question about. What were the ancient Olympic games? 12-4401
Picture. chariot race in ancient Rome, 10-3744
Ganges. Most important Indian river, rising in the Himalayas and flowing through a fertile plain and a vast delta into the Bay of Bengal. It drains 390,000 square miles, its discharge of silt discoloring the sea 50 miles from its mouth; the Jumna, Gogra, Gumti, Son and Gandak are large tributaries. The chief towns it passes are Cawnpore, Allahabad, Benares and Patna, and Calcutta stands on the Hoogli mouth. The Ganges is considered sacred by the Hindus. 1,557 miles.
mud carried by, 7-2537-38
Pictures
crowds bathing, 8-2699
state barges on, 7-2540

Gangrene, Lister's discovery about, 15-5483

Gannets, birds, 11-3884

Pictures, 11-3883

alighting at nest, 11-3882

Picture (in color) 9-3282

Ganymede, cupbearer of the gods, 9-3228

Garborg, Arne, Norwegian novelist, 19-7012

Garden cities, explanation, 7-2612

Garden gate, game, 8-2743

Garden seat, how to make, 10-3506-07

Gardening

dwarf trees, how to grow, 9-3118

fruit trees on the dining-table, 9-3118

how to save trees by tree surgery, 10-3626

indoor, growing plants without soil,
7-2515-16

protecting plants against cold, 5-1767

selection of plants, 15-5382, 5384

See also name of plant, for directions for growing it; as, Mustard

Gardens

* Flowers of the garden, 19-7169-72

for children, N. Y. city, 15-5623

Poem about, My Garden, by T. E. Brown,
18-6797

Gardiner, Samuel Rawson, historian, 9-3205

Picture, portrait, 9-3201

Gardiner, Bishop

Picture, portrait by Matsys, 4-1223

Garfield, James Abram, president of U. S., 8-2670

administration, 11-3943

life, outline of, 11-3953

Picture, portrait (gravure) 11-3946

Garfish, fish

Picture (in color) 16-5784

Garganey, bird

Picture (in color) 9-3284

Gargantua

Question about. Where do we read about the giant Gargantua? 7-2484

Gargle. A liquid medicine for cleansing or stimulating the back parts of the mouth and the throat. The liquid is churned about by muscular movement and gentle respiration, then ejected from the mouth. Gargling is one of the best treatments for sore throat.

Gargoyle. A spout projecting from the roof-gutter of a building to discharge water. Gargoyles have been used in almost every period of architecture, but the name is most closely associated with the grotesque spouts of Gothic buildings.

Garibaldi, Giuseppe, Italian patriot, 13-4588, 4590 and Italian unity, 12-4412

Pictures

portrait, 13-4583

meeting King Victor Emmanuel, 13-4589

statue of, 13-4582

Garland, Hamlin, author, 14-5007-08

Garlic. A bulbous plant resembling the onion. It has a strong odor and a pungent flavor, and is much used in cooking, especially in Southern Europe and in Oriental lands

Garneau, Alfred, French Canadian poet, 14-5110

Garneau, François Xavier, Canadian author,
14-5104-05

Garnet, account of, 19-7227

Garonne, French river, 11-3816

Garrick, David, wrote song, Hearts of Oak,
10-3606

Picture, portrait, 10-3605

Garrison, William Lloyd

published The Liberator, 11-3939

Garter snakes, 15-5413

Picture, 15-5413

Garvin, Mrs. John, see Hale, Katherine

Gary, Blasco de, and invention of steamboat,
17-6397-98

Gary, Elbert H. (1846-). American business man, head of the United States Steel Corporation. Gary, Indiana, planned as model home for steel workers, was named in his honor.

Gary, Indiana, development of, 17-6038

Gas (Illuminating)

* history of discovery and use, 3-989-93

* where gaslight comes from, 2-635-45

meters, in gas works, with picture, 2-645

pipes in streets, with picture, 2-645

Question about. Why does a shade move when hung over the gas? 12-4401

Pictures

* showing manufacture and piping, 2-635, 637,
639-45

GENERAL INDEX

Gas and oil engines

- * automobile engines, explanation, 19-7029-32
- diagrams with explanation, 19-7030-31
- gasoline engine, how it works, 13-4540
- internal-combustion engines, invention of, 19-7015-16
- two-stroke engine, with pictures, 19-7028
- use in boats, 17-6406

Pictures

- building and testing engines, 19-7021
- section of 4-cylinder engine of a motor car, 19-7024-25

Gas-making, *see* Gas (Illuminating)

Gas mantles, light from, 2-636

Gas switch

- Picture*, with explanatory note, 9-3101

Gas warfare. The use of poison gases, tear gases and others to cripple an enemy's forces. Suffocating gases were used about 431 B.C. in the war between Athens and Sparta. In the Middle Ages similar means were employed. The first gas attack in the World War was launched by the Germans at Ypres, April, 1915.

Gascons, in France, 11-3821-22

Gascony. Old French duchy, in the extreme southwest, united in 1052 to Guienne. The Gascons are famous in literature for their thriftiness and fiery temper.

Gases

acetylene, 13-4530

- Boyle's law of pressure, 15-5289
- expanded by heat, with pictures, 15-5573
- experiment to show, 19-7083-84

have no cohesion, 10-3730

in blood, 3-937

specific gravity, 14-5038

- Question about*. If the gases in water make fire, why does water quench it? 15-5614

Gaskell, Mrs. Elizabeth Cleghorn Stevenson, author, 11-3896

- Picture*, portrait, 11-3891

Gasoline

in automobile engine, 19-7029

inflammable, reason, 10-3730

obtained from petroleum, 13-4540

use for lighting, 13-4540

- Question about*. Why does a light go out in water, but flare up in gasoline? 10-3729

Gasoline engines, *see* Gas and oil engines

Gaspé, Philippe de, French Canadian author, 14-5106

Gastropods, description, 19-6889

Gates, Ellen M. H., *see* Poetry Index for poem and note

Gates, Horatio (1728-1806). Revolutionary soldier, born in England. He served in British army under Braddock but remained in America and later joined Revolutionary army; received high command, but failed as a leader.

at Saratoga, 4-1168

desired to supplant Washington, 4-1170

failed in the South, 4-1172

Picture, portrait, 4-1165

Gatling, Richard, inventor of machine gun, 19-7210

Gatun Lake, Panama Canal, 1-364

Picture and note, 1-363

Gatun locks, Panama Canal, 1-362-64

Picture and note, 1-363

Gauge, or gage. An instrument or apparatus for gauging or measuring size, force, capacity, etc.

Gauguin, Paul. French impressionist painter; born, Paris, 1848; died, West Indies, 1903.

Gaul, France in early times

Cæsar in, 4-1198-99, 1366

Gauls, ancient tribe of Europe

burned Rome, 309 B.C., 4-1194

Gauntlet. In medieval armor, the glove for protecting the hand. It was made entirely of metal or of roundels and plates of steel upon leather. Earlier examples were attached to the armor for the arm; later styles were separate.

Gaur, wild cattle of India, 4-1263

Picture (gravure) 4-1266

Gautama, *see* Buddha

Gautier, Théophile. Noted French romantic novelist, poet and literary critic; born, Tarbes, 1811; died, Neuilly, near Paris, 1872.

story of his cat, 11-3837

Gay, John

Picture, portrait, by Kneller, 6-2003

See also Poetry Index for poem and note

Gay-Lussac, Joseph Louis. French chemist; born, 1778; died, 1850; established the laws concerning union of gases.

law explained, 15-5425

Gayal, cattle, 4-1263

Picture (gravure) 4-1266

Gaza. Ancient city of Palestine, once a Philistine stronghold.

Gazelle-camel, extinct animal, 5-1600

Gazelles, animals, 4-1444

Picture, 4-1445

Gazettes, early name for newspapers, 7-2483

Gean, name for wild cherry, 12-4383

Geckos, lizards, 14-5230

Pictures, 14-5231, 5233

Geddes, Jenny. An old woman opposed to prelacy who took up her stool to throw at the Bishop's head in St. Giles's Cathedral, Edinburgh, in 1637.

Geese

* account of, 11-3885, 3888

anecdotes of, by Jack Miner, 8-2816-18

story about

Geese who kept guard of Rome, 11-3982

Pictures, 11-3886-87

African pigmy goose (in color) 12-4369

gray lag goose (in color) 8-2898

red-breasted goose (in color), 12-4370

wild geese in Miner sanctuary, 8-2815

Geikie, Sir Archibald (1835-1924). An eminent Scottish geologist.

Geissler's tubes. Sealed vessels so constructed as to show the effects of electricity when passed through rarefied gases. The result is a display of light varying in color and intensity.

Gelatin. A substance obtained from certain animal tissues when treated with hot water or acids. It swells but does not dissolve in cold water, and dissolves in hot water. When its solution made with hot water cools, it has the form of a tremulous jelly.

Gelert, dog, story of, 5-1693

Gemini, constellation, legend about, 17-6288

Gems

* history and description, 19-7225-34

Pictures (in color) facing 19-7225

Gemsbok, animal, 4-1444

General Grant National Park, California, 7-2290-91

General Sherman Tree, sequoia, 7-2290-91

Generations, Alternation of, 3-884

in jellyfishes, 19-7060, 7065

Genesis. The first book of the Old Testament in the Bible. The word is derived from a Greek word meaning origin, source, beginning. The book gives the stories of creation, the flood, the scattering of races and the lives of the early Hebrew patriarchs.

Genet, animal. *Picture*, 2-496

Geneva. Historic Swiss city, stronghold of Calvin in the 16th century, and now seat of the League of Nations. Standing at the exit of the Rhone from Lake Geneva, it is a well-built place with a 12th-century cathedral, a university and fine modern buildings. Watches and jewelry are manufactured.

See also 16-6006, 6008

Geneva, Lake. Largest lake in the Alpine region, covering 225 square miles. It lies between Switzerland and France, and is traversed by the Rhone, its waters being famous for their transparency and blueness. Geneva, Vevey, Montreux, Villeneuve and Ouchy, the port of Lausanne, are the principal Swiss towns on its shores, and at the east end is the castle of Chillon. *See also* 16-6000

Picture, 16-5999

Geneva Convention, 1864. International agreement to respect those who attend sick and wounded in war.

Genevieve, St. Patron saint of Paris, reputed to have saved the city from Attila by her prayers in 451.

Picture, Bishop and St. Genevieve, by Chavannes, 7-2478

Genghis Khan, *see* Jenghiz Khan

Genii. Spirits having influence over certain places, persons or things, particularly powerful demons, both good and bad, in Arabian and Mohammedan lore, who took part in human affairs and were sometimes under the control of magic. In this sense *genii* is the same as *jinn* of which the singular is *jinn*.

GENERAL INDEX

Genius, patron spirit of every man, 9-3234
Genoa, Chief port and one of the most important manufacturing cities of northern Italy, with iron-working, fruit-preserving, sugar, cloth and cotton industries. Once a powerful republic, sharing with Venice the trade of the East, Genoa still has many fine Renaissance palaces and ancient churches; its cathedral dates from 985. Among its citizens were Columbus and Mazzini.

See also 12-4413

architecture, Renaissance period, 17-6299

Picture, 12-4413

Genre painting

Brueghel, "father of genre painters," 4-1227
 explanation of term, 5-1588
 from Rembrandt, 5-1711
 of Dutch artists, 5-1588
 of Hogarth, 6-2005

Genteel lady, game, 8-2745

Genth, Lillian, American painter, 10-3455

Gentian Family, in botany, 13-4875

Gentians

fringed, account of, 16-5732
 of Pacific coast, 19-6939
 Pine Lands gentians, 19-7086
Poem about. To the Fringed Gentian, by W. C. Bryant, 19-6873

Picture

Pine Lands gentian, 19-7087

Pictures (in color)

common autumn gentian, 14-4985

field gentian, 14-4994

marsh gentian, 16-5882

Gentile. Literally "one who belongs to a gens, or clan." In the Scriptures, anyone not a Jew; in later writings sometimes anyone neither a Jew nor a Christian.

Geography

* Face of the earth, 6-2169-76
 game, maps made into pictures, 9-3375-76
 See also Earth; Sea; Physical geography
 For list of main articles, arranged by countries, see 20-7615-16

Pictures, varied scenes, 6-2173-76

Geography, Physical, see Physical geography

Geologists

Dana, James Dwight, 19-7054-55

Picture, 19-7051

Dawson, Sir William, 19-7056

Picture, 19-7055

Lyell, Sir Charles, 2-592

Miller, Hugh, 6-2069-70

Smith, Dr. William, 6-2069

Geology

* How fire and water made the world (i.e., early formation of earth's surface), 2-525-27
 * How sun and wind made the hills (early period, crust formation), 2-629-34
 * How to know the rocks, 17-6285-86
 * Stony book of nature, 6-2069-70
 historical periods, brief account of, 2-634
 historical periods (arranged chronologically)

Cambrian period, 3-905-06

animal life, 3-906

location of rocks, 3-905

Pictures, 3-907

Silurian period, 3-1031-32

location of rocks, 3-1032

Pictures, 3-1033

Devonian period, 4-1175-77

location of rocks, 4-1176

Pictures, 4-1177

Carboniferous period, 4-1295-97

animal life, 4-1296

description, 13-4535

plant life, 4-1296

Pictures, 3-787

showing fossils in rocks, 4-1297

showing plants and animals, 4-1297

Permian period, 4-1296

Triassic period, 4-1401-03

location of rocks, 4-1401-02

Pictures, 4-1403

Jurassic period, 5-1545-47

location of rocks, 5-1545

Pictures, 5-1547

Miocene period, 5-1784

Cretaceous period, 5-1659-60

rocks raised above sea, Eocene period,

5-1783

Pictures, 5-1661

Tertiary period, 5-1783-85

Geology—historical periods (continued)

Eocene period, 5-1783-85

location of rocks, 5-1783

Pictures, 5-1785

Oligocene period, 5-1784

Pliocene period, 6-1925-26

Pliocene and Pleistocene periods

Pictures, 6-1926-27

Pleistocene period, 6-1925-28

North America, geology, 3-773-75

changes in surface, 1-157-59

* strata of rocks, what they show, 2-631-34

study of, 6-2069

See also Geologists; Rocks; Strata

For list of main articles, see 20-7614-15

Question about. Why is the Wallace Line of importance? 2-587

Pictures

geological formations explained, 6-2072-73

showing typical forms, 6-2071-75

various periods of geology, 11-3925

Geometry, Euclid's studies in, 2-701-02

George, St., patron saint of England

and the dragon, 1-54

Pictures

Baumgartner as the saint, by Dürer, 4-1347

drawing by Dürer, 4-1348

fight with the dragon, 1-357

painting by Mantegna (graveure), 3-1112

statue by Donatello (graveure), 13-4613

with dragon and princess, 1-55

George I, king of England

could not speak English, 6-2097-98

George II, king of England

Georgia grant, 2-554

main interest in Hanover, 6-2097

George III, king of England

character, 6-2097

delayed peace with United States, 5-1695

policy toward colonies, 4-1159, 1162

statue in New York melted for bullets,

17-6208, 6210

George IV, king of England

meeting with Sir Walter Scott, 7-2632

Picture, portrait by Hoppner (graveure) 6-2120

George V (1865-). King of Great Britain

and Ireland, succeeded his father King Edward

VII, May 6, 1910. Married Princess Mary of

Teck. Had 6 children: 5 sons, Edward Albert,

Prince of Wales, Albert Edward, Duke of York,

Prince Henry, Prince George and Prince John;

and one daughter, Princess Mary.

Antarctic land named for, 14-5093

George, Henry (1839-97). American writer on

economics. Chief works, Progress and Poverty,

The Land Question, Protection or Free Trade.

George Washington Highway, note and pictures,

14-4884

Georgetown, capital of British Guiana, 9-3190

Georgetown, Malay Peninsula, 9-3184

Georgetown University, note and picture, 12-4316

Georgia. Soviet republic in Transcaucasia; area,

25,760 square miles; it has great agricultural

and mineral resources, including rich deposits

of manganese, iron, lead, petroleum and copper,

and contains the important towns of Tiflis, the

capital, Kutais, Poti and Batum.

taken by Russia, 16-5694

Georgia. Cotton state bordering the Atlantic;

area, 59,265 square miles; capital and largest

city, Atlanta. Besides cotton and corn, it pro-

duces much fruit, rice, wheat, sugar and to-

bacco. The chief manufactures are cotton,

lumber, fertilizers and cottonseed products. The

mineral resources are considerable. Savannah,

Macon and Augusta are the chief towns. Ab-

breviousation, Ga. Nickname, "Cracker State."

State flower, Cherokee rose. Motto, "Wisdom,

Justice, Moderation." "Georgia" was named

after George II of England. First settlement,

Savannah, 1733.

described in Southern States, 13-4517-28;

14-4889-4900

founded as refuge for debtors, 2-554

in Revolution, 4-1170; 5-1695

ratified Constitution, 5-1698; 20-7559

seceded from Union (Jan. 19, 1861), 7-2430

signers of Constitution, 20-7574

signers of Declaration of Independence,

20-7557

Sherman's March to the Sea, 7-2440

Pictures

Atlanta and Augusta, 14-4898

GENERAL INDEX

Georgia—*Pictures (continued)*

- flag (in color), 19-7190
- home of Joel Chandler Harris, 12-4816
- Sherman's March to the Sea, 7-2439
- Stone Mountain, 13-4518
- Tugalo dam at night, 15-5428
- Georgian Bay**, Lake Huron, description, 6-1956
- Geraint and Enid**, story of, 17-6320-23
- Geranium**, flower, description, 19-7170
- wild, description, 18-6570
- See also* Herb Robert
- Geranium Family**, in botany, 13-4873
- Gerhardt, Paul**, German poet, 17-6268
- Géricault, Jean Louis André Théodore**, French painter, 6-2081
- Gérin-Lajoie, Antoine**, French Canadian author, 14-5106
- Gerlache, Adrien de**, antarctic explorer, 14-5091
- Picture*, portrait, 14-5089
- Germ-plasm**, explanation, 15-5613-14
- German architecture**, *see* Architecture, German
- German East Africa**
- after World War, 9-3054
- now called Tanganyika Territory, 18-6811
- German literature**
- * account of, 17-6265-71, 6409-15
- folk-songs, 7-2366-67
- See also* Myths and legends—German
- German painting**, *see* Painting, German
- Germander**, flower
- Picture*, wood germander (in color), 14-4992
- Germander speedwell**, flower, 14-4980
- Pictures*, 14-4979; (in color) 13-4880
- Germania**, ship, in arctic exploration, 13-4710
- Germanicus, Caesar**, Roman general, 5-1861
- Germany**. Republic of Central Europe, with an area of 182,213 square miles and a population of about 60,000,000. It consists of a federation of states, of which Prussia, Bavaria, Württemberg, Baden and Saxony are the chief, and is the most important manufacturing country of the European continent, having nearly 50 towns with over 100,000 people. In 1912 its annual mineral produce was valued at nearly \$3,000,000,000, the coal-fields of the Ruhr and Saar valleys, Saxony and Upper Silesia being especially important, though iron, lead, zinc, silver and salt are also mined. Rye, wheat, sugar-beet, wine and potatoes are the chief crops, and textile, engineering, chemical, paper, iron, steel and hardware the chief manufacturing industries. Among the greatest cities are: Berlin, the capital, Munich, Leipzig, Dresden, Cologne, Breslau, Frankfurt, Düsseldorf, Nuremberg, Hanover, Magdeburg, Stuttgart, Chemnitz and Mannheim. The greatest ports are Hamburg, Bremen, Königsberg, Stettin, Kiel and Lübeck. On November 9, 1918, the abdication of the German Emperor was announced and from that date Germany became a Republic.
- * Building of Germany, 11-3959-74
- * Germany as it is to-day, 12-4160-80
- agriculture, 12-4164, 4166
- architecture, *see* Architecture, German
- area, 12-4162
- art, *see* Architecture, German; Painting, German
- canals, 13-4786
- cities, 12-4168, 4170
- colonies
- in Africa, after World War, 9-3050
- Pacific islands lost by her, 9-3300, 3302
- Pacific Islands, how divided after World War, 7-2578
- Samoa, 10-3592
- description, 12-4161-72
- education, 12-4172
- forestry, first conservation movement, 8-2803
- history, 11-3959-74
- history (arranged chronologically)
- struggle against Rome, 11-3960
- establishment of Holy Roman Empire, 11-3962
- struggle between Popes and Emperors, 11-3962-63
- Peasants' War, under Charles V, 11-3963
- Reformation, 11-3964
- Thirty Years' War, 11-3964
- * Frederick the Great, reign of, 11-4042-49
- Napoleonic Wars, 11-3966, 3968
- confederation, after Congress of Vienna, 11-3968
- confederation under Bismarck, 11-3970

Germany—*history (continued)*

- Franco-Prussian War, 10-3573
- Empire established, 1871, 11-3972
- in World War, 11-3974
- industries, 12-4166, 4168
- intellectual influence, 12-4172
- labor conditions, 12-4163
- legends, *see* Myths and legends—German
- literature, *see* German literature
- map, 11-3973
- minerals, 12-4166
- national flower, the cornflower, 17-6181
- painting, *see* Painting, German
- physical geography, 12-4162, 4164
- population, 5-1605
- religion before Christianity, 11-3959
- rivers, 12-4162
- sculpture, *see* Sculpture, German
- social life, 12-4172
- song, Die Wacht am Rhein, by Schneckenburger, 17-6253
- territorial losses since World War, 18-6461-62
- For list of main articles, *see* 20-7594
- * *Pictures*, 12-4160-80
- historical, 11-3959-71
- life of children, 12-4167
- * various scenes (gravure) 12-4173-80
- Germs**, *see* Microbes
- Geronimo**, Algerian slave, martyrdom of, 19-6880
- Gerry, Elbridge**, vice-president of U. S.
- Picture*, portrait (gravure), 11-3948
- Gerrymander**. In United States politics, an arbitrary arrangement of the political divisions of a state, without regard for natural boundaries, in order to give some party an unfair advantage in election.
- Gershwin**, musical composition based on jazz, 19-7153
- Gesner, Abraham**, and kerosene, 3-996; 13-4534
- Gessart, Jan**, *see* Gossaert, Jan
- Gesta Romanorum**, stories from, 8-2961-62
- Gettysburg, Battle of**, 7-2436
- Gettysburg National Cemetery**
- Pictures*, with notes, 18-6837-38
- Geysers**, explanation and description, 2-730, 733
- Pictures*, 2-728, 731
- Gharials**, Indian crocodiles, 14-5230
- Picture*, 14-5226
- Ghats**. Mountain ranges fringing the east and west of the Indian Deccan.
- Gheel, Belgium**, care for insane, 8-2728
- Ghent**. Ancient Flemish capital, at the junction of the Lys and Scheldt. Here are splendid medieval buildings, including the magnificent cathedral, belfry, cloth hall, university, and Béguinages, while there are textile, iron, leather and sugar industries.
- Pictures*, 15-5506
- Quai aux Herbes, 15-5499
- Ghent, Treaty of**
- ended War of 1812, 3-945; 5-1706
- Gherkin**, kind of cucumber, 7-2616
- Ghetto**. That quarter of a town or city, particularly in Italy, which was set apart for the Jews and to which they were compelled to confine their residence.
- Ghibellines**, party in Florence, 5-1735
- Ghiberti, Lorenzo**, Italian sculptor, 13-4604
- * life and work, 5-1737-38
- Pictures*
- portrait, 5-1735
- gates for the Baptistery, Florence, 13-4603; (gravure), 5-1741
- Ghirlandaio (Domenico Bigordi or Corradi)**, Italian painter, 2-699
- Pictures*
- Virgin with infant Christ (gravure), 2-693
- The Visitation, 2-690
- Giant dock**, *see* Dock—great water
- Giants**, men of great size
- list of, and possible reason for size, 9-3224
- Question about. Where do we read about the giant Gargantua? 7-2484
- Giant's Causeway**, Ireland
- description, 6-2070
- how formed, 2-526
- Picture*, 8-2931
- Gibbon, Edward**, historian
- life and qualities as historian, 9-3202-04
- Pictures*
- portrait, 9-3201
- as a young man in Rome, 9-3203

GENERAL INDEX

- Gibbon, John Murray**, author, 15-5374
See also Poetry Index for poems and notes
Picture, portrait, 15-5374
- Gibbons, James, Cardinal**. Born, Maryland, 1834; died, 1921. An American Catholic church dignitary. He was created a Cardinal in 1886.
- Gibbons, Grinling**, English decorator, 13-4854 and John Evelyn, 5-1730
Picture, 5-1729
- Gibbons, apes**, 1-208, 213
Picture, 1-212
- Gibbous Moon**. A term applied to the moon when more than half full. Gibbous is from a Latin word meaning "hump-backed."
- Gibraltar**, British possession, 9-3181-82
Picture, Rock of Gibraltar, 9-3187
- Gibraltar, Strait of**. Strait dividing Europe from Africa and connecting the Atlantic with the Mediterranean Sea. 8-13 miles wide, it is dominated by the fortress and Rock of Gibraltar; on the Moroccan shore are the ports of Ceuta and Tangier.
- Gila monster**, lizard, 14-5232
Picture, 14-5231
- Gilbert, Captain**, named Gilbert Islands in Micronesia, 9-3302
- Gilbert, Alfred**, English sculptor, 13-4854, 4856
Picture of statue, Perseus Arming, 13-4855
- Gilbert, Sir Humphrey**, English mariner attempted colony in Newfoundland, 1-251
life of, 14-4962
Picture, taking possession of Newfoundland, 14-4961
- Gilbert, Sir John**, English painter
Picture, Shylock and the merchants on the bridge in Venice, 3-983
- Gilbert (Gilberd), William**, English philosopher experiments with electricity, 4-1243-44; 16-5666
Picture, showing Queen Elizabeth an electrical experiment, 4-1254
- Gilbert Islands**
account of, 9-3302
belong to British Empire, 9-3302
population, and nation ruling, 9-3186
- Gilboa dam**, Schoharie Creek
Picture, in construction, 14-5054
- Gilder, Richard Watson**, *see* Poetry Index for poem and note
- Gilding**, preparation of gold leaf, 15-5520
- Gilgamesh**, hero of Assyria, 2-657
- Giliaks**, Siberian race, 16-5851
Picture, 16-5851
- Gill-net**, in fishing, 11-4052
- Gill-over-the-ground**, 14-4980
- Gillot, Joseph**, and manufacture of steel pens, 10-3550
- Gilman, Samuel**, wrote Fair Harvard, 18-6514
- Gilmore, Patrick Sarsfield**, song-writer, 18-6514
- Gimlet**, tool, how to use, 1-233
- Ginevra**. *Poem about*. Ginevra, by Samuel Rogers, 6-2032
- Ginger**
account of, 8-2996
wild, description, 17-6278
Picture of plant (in color), 8-2998
- Giocondo, Fra Giovanni**, Italian architect, 4-1458
- Giorgione, Il (Giorgio Barbarelli)**, Italian painter, 3-1106; 4-1462
Pictures
portrait, 4-1455
Portrait of a General, 4-1457
- Giotteschi**, followers of Giotto, 2-698
- Giotto (or Giotto di Bondone)**, Italian artist
life and work, 2-697-98; 5-1736-37
designed campanile, Florence, 5-1737; 17-6163
Pictures
Death of St. Francis (gravure), 2-696
The Flight into Egypt (gravure), 2-694
Giotto's tower, Florence (gravure), 5-1746-47
St. Francis preaching to the birds, 6-1990
statue of, 5-1735
- Gipsy**. A member of a vagabond race which made its appearance in the eastern part of Europe about the 14th century and is now found in almost every part of the world. The name reflects a popular belief that these people came from Egypt originally.
- Gipsy moth**, how introduced into U. S., 18-6734
note and picture, 17-6069
Pictures (in color), 18-6534
- Gipsywort**, plant, 16-5880
note on, 16-5879
Picture, 16-5879
- Giraffe**, animal, 4-1445
description of, for game, 8-2880, 3023
drawing of, how to make, 6-2165
Picture, 4-1440; 18-6813
- Giraffe-camel**, extinct animal, 5-1600
- Giralda**, tower in Seville, 15-5466
Picture, 15-5469
- Girardon, François**, French sculptor, 13-4700, 4702-03
- Girardot, Georges**, artist
Picture, Columba's first sight of Scotland, 8-2842
- Girgenti**, Sicily
Picture, Temple of Concord (gravure) 15-5352
- Girl I Left Behind Me**, song, popularity of, 10-3608
- Girls**, in China, 2-436
See also Camp Fire Girls
Question about. Why does a boy's voice break and not a girl's? 4-1230
Poems about
Maidenhood, by H. W. Longfellow, 14-5240
My Playmate, by J. G. Whittier, 18-6466
Three Years She Grew, by William Wordsworth, 18-6467
- Girodet-Trioson, Anne Louis**, French painter
Picture, Napoleon when a boy, 6-2103
- Gironde**, mouth of the Garonne, 11-3816
- Girondins**, party in French Revolution, 6-2134
- Gisborne, Thomas**, *see* Poetry Index for poem and note
- Gizen**
pyramids, see Pyramids of Egypt
Sphinx, see Sphinx in Egypt
Pictures
pyramids, 3-811; (gravure), 7-2606; 14-5214
Sphinx, 1-352; 3-819
walls of a tomb (in color), 1-295
- Glacial epoch**
description and effects, 6-1925, 1928
effect on soil of northeastern U. S., 10-3404
in North America, 1-158
lakes caused by, 1-158
making of Great Lakes, 6-1955-56
remains of, in rocks, 6-2070
Picture, marks left on the rocks, 6-2069
- Glacier National Park**, description, 7-2281
Picture, 7-2283
- Glaciers**
** account of*, 7-2316
explanation of, 11-3819
extent in prehistoric times, 7-2316
how formed, 6-2250
Mer-de-glacé, in Alps, 11-3819
of Norway, largest in Europe, 15-5298, 5300
See also Glacial epoch
Pictures, 6-2176; 7-2315, 2318; 11-3819
Francis Joseph, New Zealand, 7-2570
Grindelwald, 17-6086
- Gladiators**. In old Roman times, men who fought to give the people entertainment. Sometimes they fought against other gladiators, sometimes against wild animals. These fights took place in arenas before large audiences.
Picture, 12-4459
- Gladiolus**, flower. *Picture (gravure)*, 19-7180
- Gladstone, William Ewart**. English statesman; born, Liverpool, 1809; died, Hawarden Castle, Flintshire, 1898; prime minister four times. The Irish Church was disestablished and two Home Rule Bills were brought before Parliament and defeated in Gladstone's terms of office.
Pictures, portrait, 15-5618
portrait, in group, 7-2295
- Glamorgan**. County of South Wales; area, 813 square miles; capital, Cardiff. The main industry is coal-mining, the anthracite mines being the most important in Great Britain; but the tinplating, smelting and oil-refining industries are considerable. Here are the ports of Cardiff, Swansea and Barry, and the mining centres of Rhondda, Merthyr, Tydfil, Aberdare and Pontypridd; other places of note are Llandaff, Caerphilly and Neath.
- Glands**
** Our wonderful glands*, 9-3221-24
definition, 4-1418
ductless, 9-3222-24
of bowel, 6-2085-86
of ear, 9-3206
of stomach, 6-2083-84
produce chemical substances needed by body, 3-939

GENERAL INDEX

Glands (continued)

sweat, *see* Sweat—glands
use in body, 4-1452

Pictures, diagrams of two glands, 9-3221

Glasgow, Ellen, novelist, 14-5011

Glasgow. Largest Scottish city and port, and second largest in Great Britain. Standing on the Clyde, 23 miles from its mouth, it is in the heart of the iron- and coal-mining district of western Scotland, of which it is the commercial and railway centre. Shipbuilding, iron-founding, engineering, and the making of locomotives are all important, but there are also textile, rubber, chemical, glass and many other manufactures, while the shipping trade is considerable. The cathedral of St. Mungo was begun in the 12th century, and the university founded in 1450.

Glass

* How glass is made, 18-6745-52

history of manufacture, 18-6745-46

how to mend, 13-4737

optical glass, 13-4670

value to science, 18-6745

Questions about

Does a light-wave go through glass? 11-3977

Why do we put a spoon in a glass before pouring in hot water? 9-3354

Why does glass not break if put in cold water and boiled? 15-5518

Why does hot water crack thick glass more easily than thin? 13-4828

Why is it difficult to write on glass? 11-4133

Why will glass not bend like steel? 3-879

Pictures, manufacture, 18-6744, 6747-52

Glass-snake, 14-5232

belief about, 1-359

Glasses, Musical, history and description,

15-5333

Glasswort, plant, 14-5158, 5164

jointed, called marsh samphire, 14-5164

Glastonbury. Ancient town in Somersetshire, England, famous as a place of pilgrimage in the Middle Ages. Here are remains of one of the finest abbey churches in England, besides several monastic buildings. Near by are prehistoric lake-villages.

Glaucus, a sea god, 9-3235-36

Glaze on pottery

how made, 5-1668

in ancient times, 5-1663-64

Glen, William, song-writer, 10-3610

Gliders, model, how to make, 2-625

Globe flowers, 15-5606

Pictures, 15-5606; (in color) 15-5610

Globe Theatre, Southwark. *Picture*, 2-720

Globe-fishes, account of, 16-5900

Picture, lesser spotted globe-fish, 16-5897

Globigerina, make up ooze in sea, 7-2539

Gloria Patri. Latin for "Glory be to the Father."

Glory of the Snow, flower, 19-7172

Gloucester. Capital of Gloucestershire, on the Severn. One of the most historic English cities, it has a splendid cathedral, largely Norman in style, a 12th-century church, and remains of ancient walls. There are railway shops and agricultural trades.

legend of fairy horn, 17-6224

Pictures, cathedral (graveure), 16-5974, 5976

Gloucester. Famous fishing port in Massachusetts.

Gloves, how to mend, 11-3858

Glow-worms

description, 18-6626

Poem about. Nightingale and Glow-worm, by

William Cowper, 2-606

Question about. Why does a glow-worm

glow? 11-3979

Gluck, Christoph Willibald, German musical composer

life and work, 19-6916-17, 7073-74

Picture, portrait, 19-6912

Glucose, sugar from fruits and vegetables, 10-2416

Glue

for wood, kinds of, 4-1395

Question about. Why does glue hold wood together? 2-163

Gluten, substance in flour, 2-626

in wheat, 5-1738

Glutton, North American, animal, losses caused by, 12-4341

Glycerine, or **glycerol** (C₃H₅(OH)₃). A sweet sirupy liquid which is colorless and odorless. It is obtained by the saponification of the natural fats and oils which are compounds of it with various acids. Used as an ointment, as a solvent and vehicle for medicines, as a preservative in food products, as an adulterant in wine, beer, etc., and largely for the manufacture of nitroglycerine.

Glycon, Athenian sculptor

Picture, Farnese Hercules, 12-4465

Glyptodonts, prehistoric armadillos, 7-2398

Picture, 1-93

Gnatcatcher, bird, description, 14-5025

Gnawers and burrowers, * 3-1127-34

Gneiss, rock

description, 17-6386

in North America, 3-773-74

Gnossus, *see* Knossus

Gnu, animal, 4-1444

Picture, 4-1443

Go-devil, oil machine, 13-4542

Goa, Portuguese population, 14-5188

Goat-moth caterpillars, 18-6528

Goat-sucker, name given the nightjar or night-hawk, 1-353; 9-3372; 13-4831

Goatfish

red goatfish, 16-5775

Picture (in color), 16-5785

Goats

* general account of, 4-1377-78

fable about, by Æsop, 6-1969

milk of, 7-2323

use in Labrador, 7-2500

Pictures, 4-1369, 1373-74

Goat's beard, flower

Picture (in color), 14-4986

Goat's-rue, flower

Picture (graveure), 19-7176

Gobelin, Jean. French tapestry-maker; born, probably Rheims; died, probably Paris, 1476. His tapestries became world-famous.

Gobi, Desert of, 6-2170; 18-6586

description, 7-2421

Gobies, fishes, 16-5776

God

Poems about

Child's Thought of God, by E. B. Browning, 2-486

Each in His Own Language, by W. H. Carruth, 4-1514

God Moves in a Mysterious Way, by Wm. Cowper, 3-1141

God Only Knows (German folk-song). 7-2366

Hound of Heaven, by Francis Thompson, 8-2901

For full list, *see* 20-7680-81

Godavery River, India, 8-2696

Godetia, flower

Picture (graveure), 19-7180

Godfrey of Bouillon

death of, 7-2589

governed Jerusalem after First Crusade, 7-2586

Godiva, Lady, story of, 17-6295

Picture. Pleading with her husband, by E. Blair Leighton, 17-6295

Gods and goddesses, *see* Myths and legends

Godwin, Earl, Saxon nobleman, 4-1436

Godwits, birds, 11-4012

Picture, 11-4011

Goes, Hugo van der, Flemish painter, 4-1226

Pictures

Adoration of the Shepherds, 4-1223

Christ in the Manger, 4-1221

St. Cecilia, 4-1223

Goethals, George W., built Panama Canal, 1-360, 362

Goethe, Johann Wolfgang von, German author

* life and writings, 17-6410-12

comment on Greek literature, 16-5748

See also Poetry Index for poems and notes

Pictures, portrait, 17-6412

house at Weimar, 17-6411

Gog and Magog, London, story of, 14-5194-95

Pictures, statues, 14-5195

Gogh, Vincent van, Dutch painter, 8-2712, 2714

Gogol, Nicholas, Russian novelist, 19-6908-09

Picture, portrait, 19-6905

Goitre. An enlargement of the thyroid gland in the anterior part of the neck, commonest in inhabitants of mountainous regions, especially, it is said, where lime prevails largely as a geo-

GENERAL INDEX

Goitre (continued)

logical foundation. X-ray treatment is chiefly used, and also iodine.

Golconda, India, its wealth a proverb, 8-2696

Gold (Au). The most malleable and most ductile of the metals and undoubtedly the first to be used by man. It is a soft, heavy yellow metal and is found usually in quartz veins. Nuggets and grains found in stream beds were washed out of quartz veins. Silver, tellurium and platinum are often found alloyed with native gold. North America, Australia and South Africa are the big gold-producing areas of the world.

boiling and melting points of, 8-3014
discovery in Australia, 7-2466
gold rush to California, 6-1922; 18-6430;
19-6848

gold rush to Colorado, 1849-50, 18-6430

history of use, 18-6549

in New Zealand, 7-2576

may be made from mercury, 12-4292

mines
in Alaska, Yukon, and Klondike regions,
7-2558; 10-3584; 16-5790

in California, 19-6843

in Rhodesia, 9-3052

in South Africa, 9-3052

in Victoria, 7-2466

in Western Australia, 7-2470

placer deposit, definition, 16-5790

production in U. S., 9-3208

production in world since 15th century,
18-6550

story about, Archimedes and king's crown,
11-3842-43

Questions about

Is there gold in the sea? 13-4594-95

What becomes of all the gold? 18-6549

Why does silver tarnish in the air while
gold does not? 10-3477

Pictures

mine at Chinese, Calif., 19-6843

sluicing in a New Zealand mine, 18-6549

washing gold, 6-1921

Gold-bug (story), by Edgar Allan Poe, summary
and excerpt, *5-1399

Gold Coast, Africa, 9-3056

Picture, 9-3058

Gold leaf, how made, 15-5520

Gold-thread, flower, account of, 17-6278-79

Goldbeater's skin

Question about, For what purpose is gold-
beater's skin used? 15-5520

Goldcrests, birds, variety of warbler, 9-3279

Picture, 9-3279

Golden chains, name for laburnum, 12-4386

Golden Deeds, stories of, see Stories, Golden
deeds

Golden earrings, name for laburnum, 12-4386

Golden Fleece, Quest of the, story, 3-1100-01

Golden Gate, San Francisco, 19-6848

Picture, 19-6849

Golden Hind, ship of Sir Francis Drake, 14-4965

Golden Horn. Inlet of the Bosphorus forming
the harbor of Constantinople. It is crossed by
Galata Bridge, connecting the Turkish district
of Stamboul with the Christian district of Pera.

Golden numbers, meaning of, 16-5959

Golden rain, name for laburnum, 12-4386

Golden robin, see Orioles—Baltimore

Golden stone, see Peridot

Golden years in Europe, * 17-6155-72

Golden years of Greece, * 12-4215-22

Goldenrod

seaside varieties, 14-5156, 5162

Picture, seaside, 14-5156

Goldfinches, birds

account of, 8-2973; 13-4832, 4834

western, 14-5145

Poem about, Return of the Goldfinches, by

Sylvia Lynd, 10-3738

Picture, nest and eggs, 8-2971

Pictures (in color), 9-3131

American goldfinch, 12-4370

green-backed goldfinch, facing 14-5140

Goldfish

account of, 15-5632, 5634

care of, 3-1026-28

Goldfish globes, how made, 18-6750

Goldilocks, flower

Pictures (in color), 14-4987; 15-5609

Goldoni, Carlo, Italian dramatist, 17-6154

Goldsinny, Jagos, fish

Picture (in color), 18-5783

Goldsmith, Oliver

* life and writings, 5-1872

as a writer of fiction, 6-2256

as essay writer, 8-2865

note on, 15-5645

Samuel Johnson's friendship for, 5-1871-72

See also Poetry Index for poems and notes

Pictures

Oliver Goldsmith and his flute, 5-1871

Oliver Goldsmith in town, 5-1870

showing Vicar of Wakefield to Johnson,
6-2258

Vicar of Wakefield, illustration of, 6-2255

walking with Doctor Johnson, 5-1869

Golf, game

directions, 9-3247-50

Question about, Does a roughened surface im-
prove a golf ball? 16-5742

Pictures, 9-3248-49

Golf, Field, game, 6-2164

Gomez, Estevan, Portuguese navigator work-
ing under Spanish colors, explored the Atlantic
coast from Maine to Carolina in 1525.

Gomez, Juan Vicente, president of Venezuela,
19-6576

Gompers, Samuel, note and portrait, 19-7166

Good Friday, observance as a holiday, 6-2094

Good Hope, Cape of. Southwesternmost point of
Africa, 30 miles south of Cape Town. Discov-
ered by Bartholomeu Diaz in 1487; doubled by
Vasco da Gama in 1497; it has given its name
to the Cape Province

Good King Henry, flower

Picture (in color), 14-4983

Goodall, Frederick, artist

Picture, boat collecting wool on the Nile,
15-5574

Goodrich, Samuel Griswold, books for children,
14-5014

Goodwin, Albert, artist

Picture, wreck from Spanish Armada, 5-1819

Goodwin, Hannibal, discoveries in photography,
18-6594

Goodwin Sands, English Channel, 9-3102

Goodyear, Charles, and sewing machine, 18-6445

Goodyear, Charles

discovery of vulcanization of rubber, 4-1406

inventions in rubber industry, 19-7211

Goodyear welt sewing machine, invention of,
18-6443

Goosanders, ducks, 11-3890

Pictures, 11-3886; (in color) 9-3129

Goose, see Geese

Goose grass, flower

Picture (in color), 13-4877

Goose march, game, 8-2744

Gooseberries

developed from wild fruit, 6-2064

wild, 11-4020; 15-5608

Picture and note, 15-5604

Pictures, 6-2063; (in color) 11-4022

Goosefoot Family of plants, 7-2618

members of, 14-5158

Gopher snakes, 15-5414

Gophers, 3-1128

Gorals, animals, 4-1378

Picture, 4-1372

Gorboduc, first English tragedy, 2-721

Gordian knot

Question about, What was the ancient Gordian

knot? 8-3013

Gordius, made king of Phrygia, 8-3013

Gordon, Alfred, Canadian author, 14-5109

Gordon, Charles George (Chinese Gordon). Eng-
lish general and administrator, pioneer of Brit-
ish rule in the Sudan; born, Woolwich, 1833;
killed, 1885, at the Mahdi's capture of Khar-
toum; suppressed the Taiping rebellion in China.

in Taiping rebellion, 2-432-33

Gordon, Charles William (Ralph Connor),
author, 15-5369

Gordon, George P., made improvements in print-
ing-press, 9-3389

Gordon Riots, 1780. Organized by Lord George

Gordon as a protest against relaxation of pen-
alties against English Roman Catholics.

Gorgas, W. C., in Canal Zone, 1-366

use of malarium, 13-4540

Gorges, Sir Ferdinando (c. 1566-1647). The

founder of the state of Maine and sometimes

called the father of English colonization in

GENERAL INDEX

- Gorges, Sir Ferdinando** (*continued*)
 America. In 1622 Gorges and John Mason received a grant of land between the Merrimac and Kennebec rivers from the New England Council and made a settlement at Saco, Maine.
- Gorgons**, imaginary creatures, description, 1-355-56; 9-3236
 and Perseus, 15-5442-43
Picture, 1-355
- Gorillas**
 account of, 1-207
 tame gorilla, story of, 1-207-08
 first specimens seen in Africa, 2-465
Pictures (graveure), 1-209, 211
- Gorizia**. City of northeast Italy, with a cathedral and an ancient castle. It has leather, paper, soap and pottery manufactures, but was much damaged during the World War.
- Gorki, Maxim**. Modern Russian writer; born, Nijni Novgorod, 1868. After an early life of extraordinary hardship he published volumes of short tales of the underworld in a strong, new vein, which made him famous. He has written a number of plays also.
Picture, portrait, 19-6905
- Görner Grat**, glacier, Switzerland, 7-2316
- Gorse**, note and picture, 1-331
- Goshawk, American**, 10-3759; 13-4761
Picture, 10-3755
- Gossaert, Jan**, called Mabuse, Flemish painter, 4-1227
- Gosse, Edmund**, see Poetry Index for poems and notes
- Gota Canal**. Sweden, note and picture, 13-4787
- Gotch, T. C.**, artist
Picture, In the Days of the Folk Song, 16-5739
- Gotham**, England, story about, 6-2108
- Gothe, Johann Wolfgang von**, see Goethe
- Gothenburg, or Göteborg**. Chief port of western Sweden, on the Cattagat. A cathedral city, it has shipbuilding, fishing, iron-founding and brewing industries and a great export trade.
- Gothic architecture**, see Architecture. Gothic
- Gothic art**, influence on Renaissance, 2-691
- Goths**, barbarian tribe of Europe
 invaded and conquered Rome in 408-10 A.D., 4-1195, 1200; 11-3960
Picture, Goths entering Rome, 4-1195
- Goujon, Jean**, French sculptor, 13-4700
 decorations in the Louvre, 18-6496
Picture, Nymph of the Seine, 13-4699
- Gould, Hannah Flagg**, see Poetry Index for poem and note
- Gould, Sabine Baring-**, see Baring-Gould
- Goulden, Richard B.**, British sculptor
Picture, memorial to Margaret Macdonald, 13-4858
- Gounod, Charles François**, French musical composer, life and work, 19-6925
Picture, portrait, 19-6912
- Gourd Family**, vegetables in, 7-2614
- Gourgues, Dominique de**, and Fort Carolina, 1-246
- Government**
 * Ourselves and the nation, 19-6875-78
 * Government and Taxes, 13-4553-56
 * Law—the Power Supreme, 13-4811-13
 * Laws that we should know, 14-4913-16
 national government, reasons for, 5-1787-88
 See also names of countries under subhead "government": as United States—government
- Governour**, book by Sir Thomas Elyot, stories from, 8-2963
- Gower, John**, English poet, 1-304
- Goya y Lucientes, Francisco**, Spanish painter, 4-1500
Pictures
 Bull Fight, 4-1499
 Donna Isabella, 9-3074
 The Parasol, 4-1499
- Goyen, Jan Josephszoon van**, Dutch painter, 5-1592
- Gozzoli, Benozzo**, Italian painter, 2-698
Pictures (graveure)
 Lorenzo de Medici, 5-1745
 One of the Three Wise Men, 2-698
 St. Augustine at Rome, 2-695
- Gracchus, Gaius Sempronius**, Roman statesman, 4-1365
- Gracchus, Tiberius Sempronius**, Roman statesman, 4-1364-65
- Grâce à Dieu**. French for "Thank God."
- Graces**, in mythology, 9-3228
- Grackles**, birds
 account of, 13-4766
 of southern U. S., 14-5023
Picture, 8-2969
- Grady, Charles**, American sculptor, 14-4939
- Grafting**, in fruit culture, 15-5385
Question about. What is meant by grafting? 16-5959
- Grain elevator**. A building for storing or cleaning grain during its transshipment by rail or water. Generally made of steel or re-enforced concrete. In the usual type the main body of building contains bins for storing the grain, and surmounting structure contains operating machinery and working rooms.
 See also Elevators, Grain
- Grains**
 * Bread by which we live, 7-2423-25
 * Great cereals, 5-1850-57
 grinding, primitive method, India, 8-2697
 kinds used for bread, 1-371
 See also Wheat, Oats, Barley, Rice, Sorghum, Rye, Corn (maize) and Millet
Pictures, harvesting and milling, 1-374-78
- Gram**, unit of measure, 14-4902
- Grammar**, early discoveries of Dionysius, 2-702
- Gramophone**, see Talking machines
- Grampians**. Chief Scottish mountain system, extending almost throughout the Highlands. Ben Nevis, 4,406 feet, is its highest peak; other peaks are Ben Macdhuil, Ben Lawers, Cairngorm and Ben Lomond.
- Grampus**, see Killer whale
- Granada**, Spain
 Alhambra, 15-5466-68
 cathedral, 18-6502
 lost to the Moors, 14-5044
Pictures
 Carrera de Darro, 14-5052
 Moors surrender to Ferdinand and Isabella, 14-5043
 See also Alhambra
- Grand Army of the Republic**. A voluntary association organized in 1866 of men who served in the Union army or navy during the Civil War in the United States. Its objects are to maintain and strengthen fraternal feelings, perpetuate the memory of those who have fallen, and assist the widows and orphans of deceased members.
- Grand Canyon National Park**, description, 7-2282
Picture, 7-2287
- Grand Canyon of the Colorado**, 19-6842
 description, 7-2282, 2284
Pictures, 6-2175; 7-2287
- Grand Falls**. The highest waterfalls in the world, 2,000 feet high. On the Hamilton River, Labrador.
 See also 15-5430
- Grand Rapids**. City of Michigan, trading in lumber, fruit and agricultural produce.
- Grandfather Clause**. In some of the Southern states of the United States a clause in the constitutional provisions restrictive of the suffrage, which have been made since 1890, exempting from property and literacy restrictions men or descendants of men who voted before 1867.
- Granite**. Igneous rocks composed of quartz or feldspar and mica, amphibole or pyroxene. Granite gets its name because of its granular structure. It is an important building-stone, contains elements necessary to life, 2-525
 description, 17-6386
 of New England, 11-3773-74
 quarry in South Carolina, with picture, 13-4528
 Vermont production, and picture of quarry, 11-3775
Question about. Why has every pavement a curb of granite? 5-1752
- Granny's Wonderful Chair**, story from, 9-3347-50
- Grant, James Augustus**, African explorer
 explorations with Speke, 2-471
Picture, portrait, 2-465
- Grant, Sir Robert**, hymns of, 12-4438
- Grant, Ulysses Simpson**, president of United States
 * life, 3-1050-51
 life, outline of, 11-3953
 administration, 8-2669; 11-3943
 as general, 7-2433, 2436-41

GENERAL INDEX

Grant, Ulysses Simpson (continued)

Indian policy, 19-7236
tomb in New York City, 17-6214
See also United States—history—Civil War

Pictures

portrait, 3-1039
portrait, by Nast, 7-2441
portrait (gravure), 11-3946
tomb, New York City, 3-1041

Granulation. The process of forming, or crystallizing, into grains, as the granulation of sugar.

Grape-hyacinths, flowers, 19-7172

Grapefruit, 6-2058, 2060

Grapes

* account of, 6-2060, 2062

varieties, 6-2062

See also Wine

Pictures, 6-2057, 2061

Concord grapes, 10-3402

grape-growing in Europe, 6-2065

Graphite. Pure carbon, black or steel-gray in color. It is found in scales, flakes, masses or earthy lumps. It soils the fingers, makes a mark upon paper and feels greasy. It is a very soft mineral. It is used to make pencils, stone polish, foundry molds and lubricants for heavy machinery. Graphite is found in most countries of the world.

used for lead pencils, 9-3354

Graphophone, *see* Talking machines

Grapsus strigosus, crab, 16-5954

Grass, *see* Grasses

Grass of Parnassus, 16-5730, 5732

Picture, 16-5730

Grass pink, orchid, description, 18-6567

Grass stains, how to remove, 2-618

Grass tree

account of, 9-3266

Picture, 9-3260

Grasses

* Great grass family, 10-3519-26

* Splendor of the grass, 10-3647-64

account of, as forage plants, 7-2409-10

bamboo, a grass, 9-3154

beauty of, 10-3648

flowers of, 10-3520, 3525

how spread to new lands, 10-3647

importance to man, 10-3647

prairie wool, Canada, 1-112

stem, structure and height, 10-3520

use in making huts, 5-1656

varieties, with pictures, 10-3649-64

water in soil affects varieties grown, 7-2410

See also Cereal crops; Wheat

Poem about, Voice of the Grass, by Sarah

Boyle, 6-2153

Questions about

What is the ordinary garden or field grass made of? 14-4952

Why does grass turn yellow after being made into hay? 15-5516

Pictures, 10-3525, 3649-64

* *Pictures* (in color), 10-3521-24

Grasshoppers

fable about, Ant and the Grasshopper, 1-58

Poem about, On the Grasshopper and the

Cricket, by John Keats, 18-6799

Picture (in color), facing 18-6720

Grattan, Henry. Irish writer and statesman, who was presented with \$250,000 by Irish people for his services to the Irish cause; born, Dublin, 1746; died, London, 1820; buried in Westminster Abbey.

and Irish Parliament, 8-2935-36

Gratz, Rebecca, of Philadelphia, 19-7164

Grave-mounds, or barrows, in England, 4-1317

Graves, Alfred Percival, translated folk-songs, 7-2366

See also Poetry Index for poems and notes

Gravitation

* explanation of, 13-4795-96

and earth's shrinkage, 14-5218

and feathers, 7-2362

cause unknown, 13-4796

* centre of gravity, 14-5177-81

effect on weight, 14-4903

experiments showing, 2-622

falling bodies

Galileo's discovery of law of, 1-280

increase in speed, 14-4903

force varies, Poles and Equator, 7-2603;

14-5035-36

Gravitation (continued)

forces opposing, 14-5181

not affected by temperature, 14-5086

relation to nebulae, 1-142

relation to tides, 2-583-84

* specific gravity, 14-5035-38

weight varies according to distance, 2-286

Questions about

Can gravitation pull a cloud down? 16-5746

Can we fall off the earth? 12-4504

Do things weigh heavier or lighter when hot or cold? 11-3977

Does a plumb line always hang straight? 2-587

Does the earth try to pull a tree down? 2-687

Has each planet a law of gravitation? 1-187

What keeps a shell from falling to the ground? 2-686

Why does a stick float? 17-6178

Why does gravitation not pull down bodies lighter than air? 8-3012

Why does not the water fall out of a revolving pail? 5-1609

Why is a needle no heavier when magnetized? 11-3976

Gravity, centre of, *see* Gravitation—centre of gravity

Gray, Asa, botanist, 19-7054

Picture, portrait, 19-7054

Gray, Elisha, inventor, 17-6242

and invention of telephone, 17-6184

Gray, Capt. Robert

named Columbia River, 5-1703

Gray, Stephen, English electrician

discoveries, 4-1246; 16-5666

Pictures, portrait, 6-2029

churchyard of the Elegy, 9-3337

Gray, Thomas, English poet

* life and writings, 6-2028-30

Elegy, 25 ways of saying first line, 17-6388

Samuel Johnson's criticism of, 5-1871

See also Poetry Index for poem and note

Grayfish, *see* Dogfish

Grazing permitted in United States national forests, 8-2804, 2806

Great Barrier Reef, Australia

discovery by Captain Cook, 7-2578

Great Bear, or **Plough**, constellation

diagram showing movement of stars, 10-3783

in map, with note, 9-3036

in mythology, 9-3233

legend about, 6-1971

Pole star and Pointers, diagram, 11-3787

stars of, names and movement, 11-3784, 3786

Great Bear Lake. Lake in northern Canada, occupying 14,000 square miles and discharging into the Mackenzie River through the Great Bear River.

Great Britain, official name, United Kingdom of Great Britain and Ireland, 18-6557
name used after Scotland joined England, 6-1981

See also England (used for convenience, both for England proper and for British Empire, to keep material together); also Ireland; Scotland; Wales

Great Charter (Magna Carta)

granted to England by King John, 5-1571

Stephen Langton supported, 8-2850

Picture, King John signing, 5-1564

Great Dane, dog, 2-718

Picture (gravure), 2-716

Great Divide. Popular term in America for the watershed of the Rocky Mountains.

Great Dividing Range, in Australia, 7-2466

Great Eastern, steamship, 17-6403

laid Atlantic cable, 12-4294

Pictures, laying Atlantic cable, 12-4295

Great fiction in its full tide, * 11-3891-99

Great Greeks, * 2-701-09

Great Ice Barrier. Antarctic rampart.

Great Kanawha River. American river, rising in the Blue Ridge Mountains, North Carolina. Empties into the Ohio River. 450 miles.

Great Lakes. Area in square miles, with greatest length and breadth in miles, and depth in feet

	Length	Breadth	Depth	Area
Superior	360	160	1,180	31,810
Michigan	307	118	870	22,400
Huron	206	101	750	23,010
Erie	241	57	210	9,940
Ontario	193	53	738	7,540

GENERAL INDEX

Great Lakes (continued)

- cities on, and their industries, 17-6044, 6046
- * description, 6-1955-58
- fish of, 11-4053
- trip through, 6-1956, 1958
- water level lowered, 19-7110
- Pictures*, 6-1955; 15-5283
- fleet of lake freighters, 8-2669

Great light shines, * 2-575-82

Great Mogul, name for Indian ruler, 8-2824

Great Rift Valley, 2-584-85

map, 2-585

Great St. Bernard. Historic Alpine pass between Switzerland and Italy, with a famous hospice near its summit; 8,108 feet high.

Great Salt Desert. Desert in northeast Persia.

Great Salt Lake. Salt-water lake in northern Utah, covering about 2,360 square miles. Its waters are so dense that the human body cannot sink in it, and the evaporation of its salt has become an important industry. On its shores is Salt Lake City.

discovered by Bonneville, 6-1916

Mormon settlement on, 6-1920, 1922

Great Slave Lake. Lake in northern Canada, covering 10,700 square miles and drained by the Mackenzie River.

Picture, 7-2559

on map, 1-107

Great Wall of China, 2-424, 429, 435

early Chinese writings found in, 3-1054

Pictures, 2-421, 435; (grave) 2-426

Great Western, steamship, 17-6402

Picture, 17-6403

Greatest book in English, * 2-473-80

Greathead, Henry, inventor of lifeboat, 19-7207

Picture, portrait, 19-7201

Grebes, birds, 11-4129-30

Pictures, 11-4129

nest, 13-4765

Pictures (in color)

black-necked or eared, 9-3281

European little grebe, 9-3283

great crested, 9-3284

Greco, El (Domenico Theotocopuli), Cretan painter in Spain, 4-1495

Pictures

Portrait of an Unknown Man, 9-3073

St. Basil, 4-1494

Greece, Ancient

* Great Greeks, 2-701-09

architecture, *see* Architecture, Greek

art, *see* Art, Greek

character of Greek thought, 2-702-03

cities, origin of, 3-1070

colonies, 3-1072

education, beginning of academies, 16-5741

government, 3-1074

* history, 2 to Roman conquest, 3-1069-82

cities in Italy conquered by Rome, 4-1194

overthrew civilization of Crete, 2-149

March of the Ten Thousand, 14-5257-58

Persian Wars, 3-914, 916, 1074-80; 11-3992, 3994; 13-4583-84

influence on art, 11-3992

horses of, 6-2014

influence

on modern world, 2-701-03, 708-09

on Rome and other countries, 3-1082; 4-1198

literature, *see* Greek literature

locks and lock substitutes, 6-2021

music of, 19-6990

use of monochord, 5-1795

mythology and religion, 3-1070; 16-5750

See also Myths and legends, Greek and Roman

pottery, early forms of, 2-450-51

sculpture, *see* Sculpture, Greek

ships and boats, 11-3912, 3914

time now reckoned, 11-4112

writers, *see* Greek literature; Greek philosophy

For list of main articles, *see* 20-7588-89

Pictures, 3-1068-79

painted vases, 2-450-52

ship, with cuts, 11-3909

Greece, Modern

boundaries, 14-4917

cities, 14-4918

description, 14-4918

history

freed from Turks, 14-4917

in World War, 14-4917-18

war with Turkey, 1921-23, 13-4806; 14-4918

Greece, Modern (continued)

map, 14-4919

song, Hymn to Liberty, 17-6255

sponge fishing, 8-2915

territorial changes since World War, 13-6458

59, 6462

* *Pictures*, 14-4920-21, 4927, 4930

Greediness

Poem about. Greedy Boy, by Mrs. Elizabeth

Turner, 3-544

Greek architecture, *see* Architecture, Greek

Greek Church, Slavonic nations joined, 13-4798

Greek Kalends

Question about. What is meant by the Greek

Kalends? 5-1752

Greek language, English words from, 16-5748

Greek literature

* account of, 16-5747-53

Goethe's comment on, 16-5748

in Renaissance, 13-4800

influence on Roman, 16-5908

poetry, Gilbert Murray's tribute to, 2-709

writers in Periclean Age, 3-1080-81

Greek philosophy

Socrates, Plato, Aristotle, 16-5915-20

Greek sculpture, *see* Sculpture, Greek

Greeks

in ancient Egypt, 3-821

influence, Renaissance period, 3-823-24

influence on Venice, 4-1456

Greeley, Horace (1811-72). A famous American journalist and politician; in 1872 ran unsuccessfully for president.

Greeley, Colorado, 18-6434

Greeley, A. W., arctic explorer, 13-4714

Green, John Richard, as a historian, 9-3205

Picture, dictating English history, 9-3200

Green River. American river, rising in Lincoln County, Kentucky. Flows into the Ohio River. 350 miles.

Green (color) in nature, reason for, 2-460

Green turtle, 14-5235

Greenaway, Kate, 19-6994

Pictures, illustrations of nursery rhymes, 19-6994

Greenback. Popular name given to the legal-tender notes first issued by the United States Government during the Civil War; so called because the back of the note has always been printed in green ink.

Greenback party. A party known as the Independent party opposed to the retirement or the reduction in amount of the greenbacks. It held its first convention in 1874. In 1877 it was absorbed into the National party, which adopted its currency policy and was known thereafter as the Greenback-Labor party.

Greene, Albert Gorton, *see* Poetry Index for poem and note

Greene, Edmund Fiske, *see* Fiske, John

Greene, Nathanael (1742-86). American Revolutionary general, born in Rhode Island. He served with great credit throughout the Revolution.

at Cambridge, 4-1164

commanded in the South, 4-1172

widow befriended Eli Whitney, 6-1912

Picture, portrait, 4-1165

Greene, Robert, English dramatist, 2-721; 3-1124

Greenfinches, birds, 8-2972

Picture (in color), 9-3131

Greenland. Huge island of North America, lying mainly within the Arctic Circle; it is remarkable for the immense ice-cap which covers its interior, the only habitable areas being narrow strips along the coast. Its area is 827,000 square miles; the population is mainly Eskimo; the polar bear, reindeer and musk-ox are the chief land animals. Whale and seal oil, furs and eiderdown are exported, and the fisheries are important. Greenland was colonized by the Norsemen in the 10th century, but the founder of the present Danish colony was the missionary Hans Egede, who settled in Godthaab in 1702. Other settlements are: Godhavn, the capital, Sydproven, Christianshaab, Julianshaab and Upernavik.

account of, 15-5298

colony from Iceland, before 1000, 1-241

discovered by Lief the Lucky, 15-5292

name, how given, 13-4708

visited by John Davis, 16th century, 8-2982-9

Pictures, 15-5290

GENERAL INDEX

- Greenlets**, birds, 9-3139; 13-4836, 4838
- Greenough, Horatio**, American sculptor, 14-4934
- Greenough, John**, and invention of sewing machine, 19-7213
- Greenshanks**, birds
- Picture* (in color), 9-3130
- Greenwich**, England, east and west reckoned from, in meridians, 1-19
- Greenwich Observatory**, founding of, 1-283
- Greenwich Time**
- Questions about*. What is Greenwich Time? 5-1808
- What is meant by a time zone? 16-5845
- Picture*, time zones based on Greenwich time, 16-5841
- Gregorian Calendar**. The calendar now in general use, introduced by Pope Gregory XIII in 1582, replacing the Julian calendar, which counted the year as 365 $\frac{1}{4}$ days, though it is really a little less. By 1582 the vernal equinox was coming on March 11 instead of on March 21. Ten days were dropped, and it was provided that in the future the even centuries (1600, 1700, etc.) should not be leap years unless they could be exactly divided by 400. This calendar was not adopted in England until 1751, when it was necessary to omit eleven days, calling the day after September 2, 1752, September 14.
- Gregory I, the Great**. Pope 590-604; born about 540; died about 604. He was a Roman of noble family who gave up public office and devoted his life to the church, being elected pope in 590. He founded six Benedictine monasteries, sent St. Augustine to Britain, and had great influence on church music, arranging the Gregorian chants.
- and English slaves, with picture, 8-2846
- life and influence, 8-2844
- Gregory VII, Pope** (Hildebrand)
- believed church should rule state, 8-2847
- failed to start a Crusade, 7-2534
- struggle with Henry IV of Germany, 8-2847-48; 11-3962
- Picture*, Henry IV begging forgiveness, 8-2849
- Gregory, Charles Noble**, *see* Poetry Index for poem and note
- Grenada**. Southernmost of the British Windward Islands; area, 133 square miles; capital, St. George's. Beautiful and fertile, it produces cacao, coffee, sugar, nutmegs, mace and cotton products, 9-3190
- Grenade**. A shell filled with powder or other explosive, designed to be thrown by hand among the enemy and to explode on impact. An ancient missile revived, improved upon, and much used during the World War.
- Grenfell, Sir Wilfred Thomason**, missionary and physician, 7-2495-2500
- Picture*, portrait, 7-2497
- Grenoble**. Old capital of Dauphiny, France, on the Isère. It has a university and a 15th-century cathedral, and manufactures kid gloves.
- Grenville, Sir Richard**, English mariner
- * life of, 14-4965
- flight on the Revenge, with Spaniards, 14-4965
- Poem about*. The Revenge, by Tennyson, 13-4739
- Picture*, sinking of the Revenge, 14-4961
- Grenville Canal**, Canada, account and picture, 6-1963
- Gresham, Sir Thomas**. English merchant, founder of the Royal Exchange; born, London, about 1519; died there, 1579.
- Gresham's Law**. Derives its name from Sir Thomas Gresham, founder of the Royal Exchange of London. He said: "When two sorts of coin are current in the same nation, of like value by denomination but not intrinsically, that which has the least value will be current and the other as much as possible will be hoarded." That is, that bad money drives out good money—true only when the sum of the two is greater than the demand.
- Gretna Green**, runaway marriages at, 18-6557
- Greuze, Jean Baptiste**, French painter, 5-1882
- Picture*
- three heads, 5-1873
- Pictures* (gravure)
- Broken Pitcher, 5-1877
- Fidelity, 5-1879
- Innocence, 5-1880
- Scene of Family Life in Old France, 5-1879
- Young Rogue, 5-1878
- Grey, Lady Jane**, queen of England, 5-1817
- and Swiss friends, 16-6004, 6006
- Greyhounds**, 2-717
- Picture* (gravure), 2-715
- Griboyedov, Alexander**, Russian dramatist, 19-6907
- Grieg, Edward**, Norwegian musical composer, life and work, 19-6925
- Picture*, portrait, 19-6912
- Grier, Edmund Wyly**, Canadian painter, 10-3703
- Picture*, Portrait of Henry Cockshutt, 10-3703
- Grieve, Lieut.-Commander**, aviator
- flight of, 1-178
- Griffin**, imaginary creature, description, 1-355
- Grijalva, Juan de**. Spanish explorer; born near Segovia, 1489; died in Nicaragua, 1527; explorer of Mexico, which he christened New Spain.
- Grillparzer, Franz**, Austrian dramatist, 17-6409
- Picture*, portrait, 17-6410
- Grimm, Jakob Ludwig Karl**, German writer, 17-6113
- wrote fairy stories, 9-3194
- Pictures*, portraits, 9-3193; 17-6414
- Grimm, Wilhelm Karl**, German author, 17-6413
- wrote fairy stories, 9-3194
- Picture*, portrait, 9-3193
- Grimmelshausen, Christoph von**, German writer, 17-6268
- Grindelwald**, Switzerland
- Pictures*, 17-6086-87
- Griselda**, Chaucer's story of, 13-4767
- Grisson**, animal, 3-872
- Gristle**, early form of bone, 5-1561
- Gromwell**, flower
- Pictures*, (in color)
- corn gromwell, 14-4992; 15-5397
- seaside smooth gromwell, 14-4981
- Groningen**. Agricultural centre and university city in Dutch Friesland.
- Gros, Antoine Jean**, French painter, 6-2081
- Picture*, Battle of Aboukir, 6-2082
- Grosbeaks**, birds
- account of, 8-2973; 13-4832; 14-5144
- blue, 14-5024
- cardinal, *see* Cardinal-birds
- pine, description, 8-2974
- Pictures*, 8-2975
- Pictures* (in color)
- black-headed grosbeak, 12-4372
- evening grosbeak, facing 14-5140
- rose-breasted grosbeak, 13-4841
- Grosseteste, Robert**, influence of, 8-2850
- Grotius, Hugo**. Dutch jurist, statesman and poet, founder of international law; born, Delft, 1583; died, Rostock, Germany, 1645.
- escape from prison, 11-3805
- Grottoes**, Va.
- Pictures*, caverns of the Shenandoah, 14-4900
- Ground-hog Day**. February 2, when the little woodchuck is commonly supposed to emerge from his winter sleep. If the day is cloudy, he stays out, anticipating an early spring; if it is sunny, he returns to his hole.
- Ground-ivy**, 14-4980
- note on, 14-4979
- Picture*, 14-4979
- Ground-nut**, 14-5165; 17-6280
- Picture* and note, 14-5160
- Ground runners**, cuckoos, account of, 14-5148
- Ground-tackle** of a ship, 14-5003
- Groundsel**, seaside plant, 14-5165
- description, 15-5390
- note on, 15-5391
- Picture*, 15-5391; (in color), 14-4989
- Grouse**
- Canada, account of, 13-4760
- ruffed, account of, 13-4760
- Oregon ruffed grouse, 14-5135
- sand, account of, 12-4363
- sooty, or blue, account of, 14-5135
- Pictures*
- black grouse (in color) 8-2897
- nest, 13-4765
- red grouse (in color) 9-3129
- ruffed grouse (in color) 13-4841
- sooty or blue grouse, 14-5136
- Grouse Family**, of birds, 12-4363-64
- Growing West**, * 6-1905-1924
- Growth**
- in plants, 2-743-45
- Questions about*
- Do we grow as much one year as another? 14-5085

GENERAL INDEX

Growth—Questions about (continued)

- What is the secret of a flower's power to grow? 2-461
- Why do we ever stop growing? 3-978
- Why does a tree stop growing? 9-3356
- Grundy, Mrs.** Name taken from a phrase in Thomas Morton's play *Speed the Plough* (1798). "What will Mrs. Grundy say?" is the question asked, and Mrs. Grundy has come to typify over-strict conventionality of behavior.
- Grünewald, Mathias**, German painter, 4-1344
- Guacharos**, birds, account of, 9-3374
- Guadalajara**, Second city of Mexico, with a magnificent cathedral. It has a large trade and many manufactures.
- Guadalquivir**, River of Andalusia, Spain, rising in the Sierra del Pozo and passing Cordova and Seville on its way to the Atlantic. It is navigable for ocean steamers to Seville. 350 miles.
- fed by melting snows, 14-5050
- Gadeloupe**, Group of French West Indian islands including Grande-Terre and Basse-Terre, the last containing the Soufrière volcano (4,869 feet). Coffee, cacao, sugar, vanilla, sweet potatoes and tobacco are produced, the chief ports being Basse-Terre, the capital, and Point-à-Pitre.
- Guadiana**, River of southern Spain and Portugal, draining 32,000 square miles. Rising in La Mancha, it flows past Merida and Badajoz into the Atlantic. 520 miles.
- Gualberto, Giovanni** (or John Gualbert), story of, 9-3244
- Guam**, island
- account of, 10-3592
- taken from Spain by U. S., 9-3300, 3302
- Picture, school building, 10-3583
- Guanacos**, wild llamas, 5-1600
- Picture (gravure) 5-1604
- Guanajuato**, Mexican city, note and picture, 19-7137
- Guano**, obtained from Atacama desert, 7-2421
- Guans**, birds of South America, 12-4368
- Picture, 12-4367
- Guarani Indians**, South America, Jesuit mission to, 19-6862
- Guarantee**. Something given by way of security; *guaranty*. An undertaking to provide for the payment of some debt in case of the failure of another to pay.
- Guard the block**, game, 10-3769
- Guardian**. One who has the care and control of another, as of a minor or a person incapable of managing his own affairs.
- Guarneri, Antonio Giuseppe**, violin-maker, 18-6700
- Guatemala**, Northernmost Central American republic; area, 42,353 square miles; capital, Guatemala. It exports coffee, bananas, timber, sugar and hides.
- Guava**, fruit
- Picture (in color) 8-3000
- Guayaquil**, Port of Quito, capital of Ecuador, exporting tobacco, hides, bark, cotton, rubber, quinine and cacao.
- Guelder-rose**, bush, 11-4020; 17-6131
- note and picture, 14-4972
- Picture, fruit of (in color) 11-4026
- Guelphs**, party in Florence, 5-1735
- Guericke, Otto von**, German scientist
- demonstrated power of vacuum, 4-1244
- first electric lamp, 16-5666
- invented first electrical machine, 4-1244
- Pictures
- portrait, 4-1243
- demonstrating power of vacuum, 4-1245
- Guernsey**, Second largest of the Channel Islands; area, 25 square miles; capital, St. Peter Port. Market gardening, cattle-raising and fishing are the chief industries.
- Guernsey**, breed of cattle, 4-1262
- Pictures, (in color) facing 4-1258
- Guerrère**, ship, beaten by Constitution, 5-1704; 17-6329
- Guiana**, former name for Venezuela, 14-4967
- Guiana, British**
- account of, 9-3190; 19-7103
- described by Raleigh, 14-4967
- history, 19-6975
- Guiana, Dutch**, 15-5568; 19-6975
- Guiana, French**, 19-6975, 7104
- Guido Reni**, see Reni

- Guienne**. Largest of the old provinces of France, containing the great port of Bordeaux. The chief British conquest in the Hundred Years' War, it was the last surrendered.
- Guild**. An association of members belonging to the same class or engaged in kindred pursuits or interests. Guilds of merchants were common in the Middle Ages.
- Guildhalls**, Flemish, 17-6162
- Guilford Court House**. Battle of the American Revolution, fought March 15, 1781, near present city of Greensboro, N.C., between Cornwallis and Greene, resulting in American defeat.
- result of, 4-1172
- Guillain, Simon**, French sculptor, 13-4700
- Guillemots**, birds
- Pictures, 11-4125
- black guillemot (in color) 8-2897
- Guillotine**, description, 6-2132
- Guinea**. Name applied to practically all tropical West Africa. French Guinea, north of Sierra Leone, has an area of 92,640 square miles, and produces tobacco, gum, cotton, wax, ivory and nuts; Portuguese Guinea lies north of French Guinea, while Spanish Guinea is a small territory on the Bight of Biafra.
- Guinea, Gulf of**. Immense gulf in the west coast of Africa, containing the Bight of Biafra and the Bight of Benin.
- Guinea fowl**, 12-4366, 4368
- Picture, 12-4362
- Guinea-hen flower**, description, 16-5876
- note on, 16-5873
- Picture, 16-5873
- Guinea-pigs**
- as pets, 13-4738
- Picture, 3-1131
- Guizot, François, Pierre Guillaume**. French statesman and historian; wrote histories of Revolution in England, civilization in Europe, and civilization in France; born, Nîmes, 1787; died, Val Richer, Normandy, 1874.
- Gulf Stream**
- account of, 7-2542
- map, 13-4826
- Question about. How big is the Gulf Stream and how fast does it flow? 13-4826
- Gulliver's Travels**, by Jonathan Swift
- * criticism, summary of portions and quotations, 3-947-56
- Gulls**, birds
- account of, 11-4122, 4124
- anecdote about black-backed gull, 11-4124
- varieties, 11-4122
- Question about. Where is there a monument to the sea-gull? 17-6288
- Pictures, 8-2759; 11-4121, 4123
- Pictures (in color)
- black-headed gull, 8-2897
- European gull, 9-3281
- great black-backed, 9-3283
- herring gull, 9-3282
- lesser black-backed, 9-3282
- Gulper, Black**, description, 16-5899
- Picture (in color), 16-5788
- Gum arabic**, 9-3151-52
- Picture, trees in the Sudan, 9-3155
- Picture (in color), 8-2997
- Gums**, plants producing, 9-3151-52
- Gunn cotton**. Obtained by soaking cotton in a mixture of nitric and sulphuric acids. This produces a series of cellulose nitrates which are inflammable and explosive. Explodes by ignition only in large quantities or when confined, but may be exploded by detonation when free.
- Gundulf**, built Tower of London, 12-4354
- Gunpowder**. A black or brown explosive substance consisting of a mixture of potassium nitrate, sulphur and charcoal, used in gunnery and in blasting. Believed to have been invented by the Chinese, its use was known in Europe in the 14th century. It is manufactured in grains of different sizes for different purposes and is being superseded for many firearms by smokeless powders.
- first used, in battle, 5-1682
- Guns**
- breech-loading, invention of, 19-7210
- bullet driven by gas, 13-4594
- flintlock musket, description, 19-6965
- machine guns, invention of, 19-7210
- of a battleship, notes and pictures, 18-6824

GENERAL INDEX

Guns (continued)

popgun, *see* Popgun
See also Shells, Explosive
 Questions about
 What keeps a shell from falling to the ground? 2-686

Why do we see the flash from a gun before we hear the noise? 10-3475

Gunwale of a ship, 14-5002

Guppy, fish. *Picture* (in color), 16-5785

Gurnards, fishes, 16-5776

Picture, 16-5777

Pictures (in color), 16-5786

flying gurnard, 16-5786

gray gurnard, 16-5782

lanthorn gurnard, 16-5782

streaked gurnard, 16-5783

Gusher, Oil, 13-4535-38

Pictures, 13-4546-47

Gustavus I, Vasa. Swedish king and hero; born, Lindholmen, Upland, 1496; died, Stockholm, 1560.

note and picture, 15-5293

Gustavus II, Adolphus. Swedish soldier, king and national hero; born, Stockholm, 1594; killed, Lützen, Saxony, 1632; reigned from 1611 and saved the Protestant cause in the Thirty Years' War.

note and picture, 15-5293

tries to found colony in America, 2-552

war in Germany, 11-3964

Gutenberg, John

life, and invention of printing, 9-3381-84

Picture, portrait, 9-3383

Guthrie, Thomas, and Ragged Schools, 17-6140

Gutta-percha, account of, 8-2790

Pictures, 8-2789

Picture (in color), 8-2997

Guy Mannerling, by Scott, note on, 11-4071

Guy of Warwick, story of, 14-5196-97

Guymer, Georges, French aviator, 17-6291-92

Gwallor, India

Pictures

fort and palace (gravure), 8-2831

Jama Masjid, 15-5478

Gwathmey inhaler, description, 8-2730

Gwyn, Nell, actress

Picture, portrait, by Sir Peter Lely, 6-2693

Gye, Dr., and cancer germ, 13-4671

Gymnasium, a building or other place for the teaching and practice of athletic exercises. In ancient Greece it was a public place for physical training, especially for competitors in the public games. It held an important place in the community. At first an open spot among trees and beside a stream, it later developed into an elaborate establishment with baths, porticos, etc. Sometimes mental training was added to the physical. Three famous gymnasia in Athens were the Academy, Lyceum and Cynosarges.

Picture, in ancient Sparta, 3-1075

Gymnosperms, plants with naked seeds, 12-4249

Gymnuras, animal, description, 1-320

Gypsum. A non-metallic light-colored mineral found in beds or granular masses. It splits easily in one direction and can be cut with a knife. When heated at high temperature gypsum falls to a powder known as plaster of Paris. It is also ground to powder and used as a fertilizer. Pure white gypsum is called alabaster. Gypsum is found all across the United States and Canada.

in Mammoth Cave, 4-1300

Gypsy moth, note and picture, 17-6069

Gyro-compass, 12-4422

of Leviathan, 12-4429

Picture, 12-4429

Gyroscope. A scientific model or instrument consisting of a heavy-rimmed flywheel capable of rotating at high speed on a pair of bearings contained in a ring, or gimbals. Designed to illustrate experimentally the dynamics of a rotating body such as the spinning-top, hoop and bicycle, and also the procession of the equinox and the rotation of the earth. It has been applied in stabilizing rolling ships at sea, in directing torpedoes, in the gyro-compass, which has been thus made independent of magnetism, in various schemes for monorail transportation and in airplane-stabilizers which operate against tipping. Scientists hold out great hopes for its use in the future.



Haakon, king of Norway, 15-5294

and Scotland, 12-4208

Haarlem. Centre of the Dutch tulip trade, with one of the largest and finest churches in Holland.

Picture, Great Church (gravure), 17-6172

Haarlem school, Dutch painting, 5-1590

Habeas corpus

act passed in reign of Charles II, 6-1980

Question about. What does habeas corpus mean? 18-6553

Habitants in Canada

* Canadian habitants, 8-2952-56

in colonial times, under seigniorial system, 2-682

Poems about

De Bell of St. Michel, by W. H. Drummond, 10-3483

Ole Tam on Bord-a Plouffe, by W. H. Drummond, 10-3479

Pictures, 8-2952-56

typical dwelling, 10-3478

Habitat, meaning of term, 15-5365

Habits

Question about. Can we break ourselves of bad habits? 3-1116

Hacienda, in the Spanish use, a landed estate. In Spanish America, an establishment in the country where agriculture, mining, manufacturing or stock-raising is carried on; more specifically, a farm that is under cultivation and has a good country house.

Hackberry, in winter, 13-4642

Haddock, fish

account of, 16-5780

Pictures, 16-5779; (in color), 16-5783

Hadrian, Roman emperor

life and reign, 5-1864

encouragement of art, 12-4468, 4470

Picture, statue of, 5-1865

Hadrian IV, Pope, *see* Adrian IV

Hadrian's Wall, Great Britain, 5-1864

Hæmoglobin, *see* Hemoglobin

Haiz, Persian poet, 15-5463

Hafnium, element recently discovered, 12-4291

Haggard, Rider, author, 11-3898

Hague, The. Administrative capital of the Netherlands, the parliament sitting in the old castle of the counts of Holland. Here is a magnificent picture gallery. The Hague is the world-centre of international law.

See also 15-5566

Haig, Douglas, Earl. Scottish field-marshal; born, 1861; commanded the British army, 1915-19. During this period were fought the battles of the Somme, of Arras, the Hindenburg line, Messines, Ypres and Cambrai, and finally the great disasters and triumph of 1918. For his services he was raised to the peerage as Earl Haig of Bemerseyde and given a grant of \$500,000.

Hail, 8-2923-24

Question about. What is the difference between snow and hail? 18-6556

Hail, Columbia! song, origin, 18-6512-13

Hainault. Once an independent countship, but now a province of Belgium; area, 1,437 square miles. It contains the important coal-mining district around Mons and Charleroi.

Haines, Frederick S., Canadian painter, 10-3704

Hair

ropes from, 11-3792

structure, 4-1420

Questions about

Why do some people lose their hair? 13-4827

Why does hair grow after the body has stopped growing? 7-2486

Why does it not hurt when we cut our hair? 8-2873

Why is Grandmother's hair gray? 17-6290

Pictures

magnified strand, 4-1415

showing glands and muscles attached, 4-1417

Hair compasses. Compasses in which a spring attached to one of the legs tends to press the other leg out. By means of a fine screw the

GENERAL INDEX

Hair compasses (continued)

distances of the legs apart can be adjusted very accurately.

Hair grass, tufted, note and picture, 10-3663

Haiti

American control, 19-7101
and Toussaint l'Ouverture, 13-4591; 19-7100
divided into two republics, 19-7100
independence declared, 1804, 19-7100
population, 19-7101

Spain surrendered to France, 19-7100

Hake, fish, 16-5780

Picture, 16-5777

Hakluyt, Richard, 3-1120, 1122

described Spanish galleon, 11-3917-18

Halberstadt. Picturesque old cathedral city in central Germany.

Halcyon, mythical bird, 9-3374

Haldane, Richard Burdon, 1st viscount

reorganized English army, 7-2300

Hale, Edward Everett (1822-1909). Distinguished American clergyman, essayist and novelist. *See* 13-4815

* **Man Without a Country**, quotations and summary, 7-2401-08

Hale, George Ellery, astronomer, 1-288

Picture, portrait, 1-281

Hale, Katherine, Canadian author, 14-5110

Hale, Nathan

* life, and execution as a spy, 11-3995-96
Poem about. Nathan Hale, by F. M. Finch, 4-1381

Picture, statue by MacMonnies, 11-3997

Haleakala, volcano, Hawaii, 7-2290

Half-tones, form of illustration, how made, 3-1065

Haliburton, Thomas Chandler

* **Clockmaker**; or **Sam Slick**, quotations and summary, 10-3527-34
comment on his **Clockmaker**; or **Sam Slick**, 14-5105

life and writings, 14-5105

Picture, home at Windsor, Nova Scotia, 14-5103

Halibut, fish

account of, 16-5778-79

Pictures, 16-5777; (in color) 16-5781

Halicarnassus, Asia Minor, tomb of Mausolus, *see* Mausolus

Halifax. Canadian port, capital of Nova Scotia. The terminus of the C.P.R. and the C.N.R., it has one of the finest harbors in the world, with accommodation for the largest ships on the transatlantic service, and it is open in the winter months. Shipbuilding and manufacturing industries are carried on, and there are exports of fish and lumber. It is also a naval base for the Canadian navy.

Dalhousie University, *see* Dalhousie University

Hall, Charles Francis, arctic explorer, 13-4710

Hall, G. H., invented breech-loading gun, 19-7210

Hall of Fame, New York University

Picture, 17-6215

Hallam, Arthur Henry, friend of Tennyson, 10-3470; 12-4343

Hallam, Henry, historian, 9-3205

Picture, portrait, 9-3201

Halle. University city and railway centre in Prussia. Birthplace of Handel.

Halleck, Fitz-Greene, author, 13-4629

See also Poetry Index for poems and notes

Hallelujah, name for wood-sorrel, 14-4972

Halley, Edmund, astronomer, 1-283-84

Picture, portrait, 1-281

Halley's comet, 1-283-84; 10-3666

Picture, 10-3668

Hallowe'en

games and tricks to play, 18-6522

meaning of, 17-6263

Hall's Chronicle, Shakesperian source, 3-1118

Hallucination. The perception of external things which have no reality, such as the sight of a pursuer where no figure exists. Generally an experience of a sick mind. Mostly visual or auditory; occasionally relating to taste, smell or touch.

Hals, Frans, Dutch painter

* life and work, 5-1588, 1590

compared with Rembrandt, 5-1712

Pictures

Man with a Sword, 5-1587

Hals, Frans—Pictures (continued)

men in group, 12-4181

Portrait of a Man and his Wife, 9-3075

Portrait of a Woman, 5-1590

Woman and a Child (gravure), 1-69

Hamadan, Persia

Pictures

general view, 3-921

tomb of Esther, 3-919

Hamadryads in mythology, 9-3237

Hamadryas, snake, 15-5414

Hamah, Syria, water-wheel at, 7-2545

Hamath, ancient name for Hamah, 7-2545

Hamburg, Germany, 12-4170

note on, 12-4160

Picture, 12-4160

Hamel, Theophile, Canadian painter, 10-3700

Hamerton, S. C., *see* Poetry Index for poem and note

Hamilcar, Carthaginian leader, peace with Rome, 4-1194, 1196

Hamilton, Alexander

* life and work, 10-3488-89

and Federalist party, 5-1702

death of, 5-1703

papers in the Federalist, 12-4450

tariff proposals, 5-1700

Pictures

portrait, 5-1694; 10-3491

portrait by Trumbull, 9-3328

portrait (in group), 5-1699

house, Hamilton Grange, N. Y. City, 10-3496

Hamilton, Lady (Emma Hart), painted by

Romney, 7-2334

Hamilton, Bermuda, population, 9-3191

Hamilton. Iron- and steel-manufacturing centre in Ontario, Canada, trading also in textiles and tobacco. Centre of Niagara fruit district. Founded in 1778 by Loyalists, it has Anglican and Roman Catholic cathedrals.

Picture, 4-1483

Hamites. People of the Mediterranean type of the white race who have inhabited all Africa north of the Sudan since prehistoric times. They are divided into Eastern and Western branches—the Eastern including the Egyptians, Nubians, Abyssinians and Gallas; and the Western including the Berbers, Tibus and Fulahs.

Hamlet, by Shakespeare, story of, 16-5761-62
criticism, 3-984-85

Picture, 3-840

Hamlin, Hannibal, vice-president of U. S.

Picture, portrait (gravure), 11-3948

Hammer

how to hammer nails, 19-7079

how to use, 1-233

Nasmyth's invention of machine-raised hammer, 19-7206

Question about. Why will a hammer break a stone when a piece of wood will not?

10-3477

Hammerfest. Northernmost town in the world, on an island of Norwegian Finmark. Fishing and sealing are important.

Hammerhead, bird, 11-4008

Picture, 11-4004

Hammerhead, shark, 16-5894

Hammock, directions for making, 10-3631-32

Hammurabi, king of Babylon

laws of, 2-651-52; 18-6672

Picture, portrait (tablet), 2-651

Hampden, John

in English Civil War, 11-3850

refused to pay king's tax, 6-1976

Picture, portrait, 11-3845

Hampshire. County of southern England; area, 1,623 square miles; capital, Winchester. Here are the Isle of Wight and New Forest, and the ports of Southampton and Portsmouth.

Hampton Court, English palace, and Henry VIII, 5-1817

architecture of, 18-6490

Hampton Normal and Agricultural Institute,

opening of, 19-7240

Hampton Roads. The lower part of the estuary of the James River, Virginia; an important military point, fortified by Fort Wool and Fortress Monroe. It is important commercially also. During the Civil War the site of two engagements.

Hamsters, animals, 3-1133

Picture, 3-1129

Hamsun, Knut, Norwegian novelist, 19-7013-14

GENERAL INDEX

- Hancock, John** (1737-93). American patriot, born at Quincy, Mass. President of Provincial Congress; of Continental Congress; governor of Massachusetts, 1780-85, and 1787-93.
 escaped from British at Lexington, 4-1163
 first signer of Declaration of Independence, 20-7553
Picture, portrait, in group, 4-1167
- Hancock, Thomas**, inventor, 4-1406
- Hand**
 bones of, 5-1676
 use in monkeys and man, 8-2841
Questions about
 Why do our hands become warm after playing with snow? 6-2124
 Why have we lines on our hands? 11-3842
 Why is our right hand stronger than our left? 12-4280
Picture, muscles of, 5-1804
- Hand**, measurement for horses, 6-2252
- Handel, Georg Friedrich**, German musical composer
 * life and work, 19-6914, 6916
 music, character and influence, 19-7071-72
Pictures, portrait, 19-6912, 7072
- Handkerchief**
 wizard's pocket-handkerchief, trick, 7-2382
- Hangchow**, Port of China, on Hangchow Bay.
- Hanging flower-box**, directions for making, 6-2262
- Hanging gardens of Babylon**, *see* Babylon—
 hanging gardens
- Hanging lantern**, directions for making, 6-2263
- Hangnests**, *see* Orioles
- Hankau**, China, centre of tea trade, 2-434
- Hannibal**, Carthaginian general
 campaign against Rome, 4-1196
 use of elephants, 6-2145-46
Picture, Hannibal's army crossing Rhone River, 4-1195
- Hanno**, Carthaginian navigator, first explorer of the west coast of Africa; lived probably 5th century B.C. He went as far as Sierra Leone and founded some towns.
 saw first gorilla, 2-465
- Hanover, House of**, claim to British crown, 11-3964
- Hansa**, ship, in arctic exploration, 13-4710
- Hansard**, Official report of proceedings in Parliament, named for Luke Hansard, printer to the House of Commons in the early 19th century.
- Hanseatic League**, in medieval Germany, 11-3963
- Hansel and Grethel** (story), 6-1965
- Hanson, Nikolai**, antarctic explorer, 14-5092
- Hanssen, Helmer**, Antarctic explorer, 14-5096
- Hapsburg family**, rulers in Europe, 17-6191-92
 founder, 11-3963
- Harbin**, Great trading centre in northern Manchuria. It was a Russian military base in the Russo-Japanese War, and in 1918 a fighting centre in the World War.
- Hard-hack**, shrub, 19-6934
Picture, 19-6931
- Harding, Chester**, American painter, 9-3330
- Harding, Warren Gamaliel**, president of U. S.
 administration, 8-2674; 11-3950
 life, outline of, 11-3954
Picture, portrait (gravure) 11-3947
- Hardy, Thomas**, novelist, 11-3896
 as a poet, 12-4229, 4233
 poem, The Dynasts, ranks high, 12-4233
Picture, portrait, 11-3891
- Harebells**, flowers, 17-6130
 note on, 17-6125
 of mountains, description, 18-6666
Pictures, 17-6125; (in color) 14-4983
- Hares**
 account of, 3-1134
 fable about, by Aesop, 2-539
Poems about
 Epitaph on a Hare, by Cowper, 7-2529
 Song of the Two Hares (German folk-song) 7-2366
Pictures, 3-1126, 1131
- Hare's ear**, flower
Picture (in color) 15-5398
- Hare's lettuce**, weed, 15-5390
- Hargreaves, James**, inventor of spinning-jenny, 19-7202
- Hark, Hark, the Lark**, song, how Schubert wrote music for, 19-6921
- Harlem Heights, Battle of**, 4-1166
- Harlequin**, character on stage
Question about. Where did the idea of Harlequin come from? 7-2487
- Harlequin**, duck, 11-3889
- Harmonic**, *see* Overtones
- Harmonica**, how to play, 19-6962-62
- Harmony**, Musical *see* Music—harmony
- Harold**, king of England, 4-1436, 1439
Pictures, scenes in his life, 4-1435, 1438-39
- Harp**
 in ancient times, 5-1795
 ancient Egypt, 13-4594
Picture, harp of ancient Egypt, 19-6899
- Harp Tank**, early fire engine, note and picture, 9-3161
- Harper's Ferry**, West Virginia, note and picture, 13-4521
 John Brown at, 7-2430
- Harpies**, imaginary creatures, 1-356; 9-3236
- Harpignies, Henri Joseph**, French painter, 7-2372
Picture, A Late Summer Scene near Herisson, 9-3076
- Harpsichord**, musical instrument, 5-1796
Picture, 5-1797
- Harriers**, birds, 10-3759
Pictures, 10-3755
 Jardine's harrier (gravure) 10-3761
 marsh harrier (in color) 9-3284
 Montagu's harrier (in color) 9-3282
- Harriers**, hunting dogs, 2-718
- Harriman, Edward Henry** (1848-1909). American capitalist, financier and railway magnate.
- Harris, Joel Chandler**, American author
 life and writings, 13-4816; 9-3139
Pictures, portraits, 9-3139; 13-4814
 home at Atlanta, Ga., 13-4816
- Harris, Robert**, Canadian painter, 10-3702
- Harris, Timothy**, tried to mold pin-heads, 9-3042
- Harrisburg**, Capital of Pennsylvania, on the Susquehanna River. A flourishing manufacturing town, it has iron, steel and engineering industries.
- Harrison, Benjamin**, president of the U. S.
 administration, 8-2670; 11-3944
 life, outline of, 11-3953-54
Picture, portrait (gravure) 11-3947
- Harrison, Henry Sydnor**, novelist, 14-5012
- Harrison, John**, inventor of chronometers, 17-6404
Pictures
 portrait, 17-6397
 at work on his clocks, 17-6404
- Harrison, Mrs. S. Frances**, Canadian poet, 14-5109
- Harrison, William Henry**, president of U. S.
 administration, 6-1916; 11-3939-40
 life, outline of, 11-3952
 took Detroit from British, 5-1704
Picture, portrait (gravure), 11-3946
- Hart, James**, American painter, 9-3332
- Hart, William**, American painter, 9-3332
- Harte, Francis Bret**, American author, 13-4818
See also Poetry Index for poems and notes
Picture, portrait, 13-4814
- Hartebeest**, animal, 4-1444
- Hartford**, Capital of Connecticut. An old city, with a busy trade and a great machinery industry; has several large insurance companies. Many important literary people have lived in Hartford.
 convention, New England leaders, 1814, about leaving Union, 5-1705-06
 founded, 2-554
Picture, State Capitol, 18-6683
- Hartford Convention**, 1814, *see* Hartford
- Hartog, Dirk**, exploration of Australian coast, 3-859-60
- Hart's tongue**, fern
Picture (in color), 10-3726
- Hartwell, Charles Leonard**, British sculptor
Picture of bust, Sylvia, 13-4853
- Harun-al-Rashid**, Most magnificent Abbasside ruler of Bagdad, famous as the caliph of the Arabian Nights; reigned 786-809.
 tomb of his wife, Zobeide, 15-5468
- Harvard, John**
 and Harvard College, 2-550
 left library to Harvard, 12-4308
Picture, grave of, 12-4150
- Harvard University**
 founded, 2-550; 12-4308
Pictures, views, 1830 and present day, 12-4306

GENERAL INDEX

Harvest

Poems about

Harvest Time, by E. P. Johnson, 15-5421

Song of the Golden Sea, by Jean Blewett, 15-5421

Harvey, William, discoverer of circulation of blood

* life and methods of study, 8-2725-27

discovered circulation of blood, 3-939; 4-1209

Picture, portrait, with Charles I, 8-2727

Harz Mts. Range in central Germany, culminating in the Brocken, 3,745 feet. Length, 60 miles.

Hasa, Arabia, 18-6676

Hassam, Childe, artist, 10-3456

Picture, Isle of Shoals (engraving), 10-3463

Hastings, Warren, English statesman; born, Churchill, Oxfordshire, 1732; died, Daylesford, Worcestershire, 1818; first governor-general of India.

in India, 8-2828

portrait, by Lawrence, 6-2109

Hastings. Seaside resort and ancient Cinque Port in East Sussex, 62 miles from London. Here is a ruined castle built soon after 1066, and near by, at Senlac, was fought the battle of Hastings. The borough includes St. Leonards.

Hastings, Battle of, 4-1439

Normans sang Song of Roland, 10-3430

Hatasu, queen of Egypt, *see* Hatshepsut

Hatherell, John, artist

Picture, Bailiff's Daughter of Islington, 11-4031

Hathor, Egyptian goddess, 3-812

Hats

cause of baldness, 13-4827

soldier's, how to make, 15-5339

toy, making from paper, 4-1396

Hatshepsut (or **Hatasu**), a queen of ancient Egypt, 3-816

sent out exploring expedition, 11-3910

temple built by, 14-5212

Hatteras, Cape. Bold island headland off the coast of North Carolina; violent storms occur in the vicinity.

Hawksbee, Francis, *see* Hawksbee

Haukwitz, Godfrey, made matches, 19-6966

Hausas. Compact race of Sudanese Negroes who live in central and western Sudan. They are a peaceful and industrious race of some 20,000,000 people, whose melodious language is used in trade from Lake Chad to the Niger.

Havana. Capital of Cuba, with a famous trade in cigars and tobacco. Founded in 1519, it is the largest city in the West Indies, and has a cathedral, many fine buildings, and a spacious and sheltered harbor. Sugar is a great export.

Picture, approach to Havana, 19-7696

Havelock, Sir Henry. English general; born, Bishop-Wearmouth, Durham, 1795; died, Lucknow, 1857; relieved Lucknow in Indian Mutiny.

Havergal, Frances Ridley, hymn-writer, 12-4437

Picture, portrait, 12-4439

Havre, Le. Important French port at the mouth of the Seine. It has shipbuilding yards, flour mills, and sugar and gasoline refineries, and exports wine, textiles, paper and agricultural produce.

See also 11-3821

Picture, Town Hall, 10-3576

Hawaiian Islands

* account of, 10-3584-88; 15-5447-51

agriculture, 15-5450

craters resemble moon's, 10-3544

customs of natives, 7-2320-21

explorers, early, 10-3586

joined U. S., 10-3586

leper colony at Molokai, 7-2321

population and races, 10-3586

position in Polynesia, 9-3300

products, 10-3586; 15-5449-51

story of, Kapiolani defies goddess Pe-le,

2-446

volcanoes, 7-2960

Pictures, 10-3582 2587; 15-5446-51

National Park, 7-2291

native superstitions, 9-3297

pineapple plantation, 9-3301

Hawfinches, birds

Picture (in color), 8-2897

Hawkbait, flower

Pictures (in color)

meadow hawkbit, 15-5399

rough or hairy, 14-4993

Hawker, Harry G., English aviator

flight of, 1-178

Hawkesbury River Bridge. This steel girder bridge of seven spans is 1,000 yards long and carries the railway connecting the big cities of New South Wales.

Hawkeye apple, old name for Delicious, 11-4133

Hawkins, Anthony Hope, author, 11-3898

Hawkins, Sir John, English mariner

* life and adventures, 14-4960

a slave-trader, 14-4962

introduced first potatoes to England, 1563,

7-2618; 14-4960

slave-trading trips to West Indies, 19-7099

Hawkins, John Isaac, used iron frame in piano, 5-1796

Hawks

* account of, 10-3758-59

buzzards, 10-3756

Cooper's or chicken hawk, 13-4760-61

duck hawks. *see* Falcons

of North America, account of, 13-4761-62

of southern part, 14-5021

of western North America, 14-5148

See also Harrier; Hobby; Merlin

Pictures

Cooper's or chicken hawk, 13-4760

European buzzard (in color), 8-2900

European sparrow hawk (in color), 8-2898

marsh hawk (in color), 9-3129

merlin (in color), 9-3281

nest, 13-4765

sparrow hawk making raid, 10-3755

Hawk's beard, flower

Pictures (in color), 14-4985

biennial, 14-4995

marsh hawk's beard, 14-4987

smooth hawk's beard, 14-4990

Hawksbee, Francis, the elder

electrical discoveries, 4-1244; 16-5666

Hawksbee, Francis, the younger

scientific lectures of, 4-1244

Hawkshawe, Mrs., *see* Poetry Index for poem and note

Hawksmoor, Nicholas, English architect,

18-6491

Hawkweed, flower

mouse-ear, description, 15-5388, 5390

orange, *see* Devil's paint-brush

Picture, mouse-ear, 15-5391

Pictures (in color)

hawkweed picris, 14-4985

mouse-ear hawkweed, 13-4878

wall hawkweed, 14-4984

Hawthorn, account of, 12-4384

English hawthorn called may, 12-4393

Pictures

fruit (in color), 11-4024

tree, flower and leaf, 12-4393

Hawthorne, Charles W., American painter,

10-3455

Hawthorne, Nathaniel, American author

life and writings, 9-3196; 13-4632-33

Pictures

portrait, 9-3193; 13-4633

home at Concord, Mass., 13-4631

Hay, Col. John. American statesman, author and poet; ambassador to Great Britain, 1897-98; Secretary of State, 1898-1905. Born, Salem, Ind., 1838; died, Newbury, N.Y., 1905. Advocated "open door" policy of trade with China. One of Lincoln's personal secretaries and co-author of a famous "Life" of Lincoln.

See Poetry Index for poem and note

Hay

amount produced by different grasses, 10-3526

cause of odor, 10-3618

cause of yellow color, 15-5515

horse-rake, use of, 19-7211

may catch fire from microbes, 14-4949-50

note, with picture, 7-2411

plants used for, 7-2409-12

U. S. crop, 8-2678

value of, 7-2412

See also Grasses

Hay Fever. An irritation of the mucous membrane of the eyes, nose and respiratory tract, accompanied sometimes by fever and asthma. Generally recurs annually about the same time of the year and lasts till first frost. Supposedly caused by inhaled pollen of certain plants. Relieved by sea and mountain air, and sometimes by serum treatment.

GENERAL INDEX

Hay-Pauncefote Treaty. Negotiated in 1901 by John Hay, Secretary of State for the United States, and Lord Pauncefote, British ambassador at Washington. Defined the policy of the United States in the construction of the Panama Canal, and specifically abrogated the Clayton-Bulwer Treaty, which had formerly regulated the matter.

Haydn, Josef, Austrian musical composer
* life and work, 19-6917-18
music, character and influence, 19-7072-73
Pictures, portraits, 19-6912, 7073

Haydon, Joe, song-writer, 18-6514

Hayes, Isaac I., arctic explorer, 13-4710

Hayes, Rutherford B., president of U. S.
administration, 8-2669-70; 11-3943
disputed election for presidency, 8-2669-70
life, outline of, 11-3953

Picture, portrait (graveure), 11-3946

Hayne, Paul Hamilton, American author, 13-4815

Hayne, Robert Y., speech on states' rights, 10-3494

Hayti, see Haiti

Hazel, bush, 6-2278

Hazelnut, fruit, 11-4020

Pictures, 6-2274; (in color) 11-4023

Hazlitt, William, English writer
character and writings, 8-2867
Picture, portrait, 8-2865

Head and the limbs, * 5-1673-77

Headaches

Questions about

Why do some people get headaches before a thunderstorm? 5-1751

Why do we get headache in a crowded room? 8-2873

Health

See Food; Digestion; Lungs

Questions about

Are we healthier than our ancestors? 12-4280

Is the country more healthful than the town? 10-3579

Health, Department of. An organization, central, state or provincial, or municipal, which cares for the problems of public health. The United States Public Health Service and the Canadian Dominion Health Department handle the problems affecting the nation generally, such as quarantine service, food-and-drug laboratories, opium and narcotic drugs. Local departments look out for pure water and milk, inspection of schools and control of communicable diseases.

Healy, Timothy M., Irish leader, 8-2940

Hearing

* Marvel of hearing, 9-3305-10

* Waves of sound, 17-6313-16

explanation of, 5-1750

location of cells in brain, 8-2947

sense lacking in most insects, 11-3978

See also Sound

Questions about

Why are blind people so quick at hearing? 6-2126

Why can we hear better when we shut our eyes? 12-4279

Why do we hear better on water than on land? 3-980

Heart

* Heart and what it does, 4-1209-13

affected by running, 7-2610

description of, 4-1211-13

instrument for measuring its beats and sounds, 16-5800

old belief about, 8-2726

position of, 4-1210

rate of beating, 4-1210

Question about. What makes the heart beat? 5-1752

Heart of Midlothian, by Scott

original of, Jeannie Deans, 12-4224

Heartthug hide and seek, game, 3-903

Heartsease, flower, 17-6130-31

note on, 17-6126

Picture, 17-6126; (in color) 15-5397

Heat

* Electric light and heat, 16-5937-48

* Heat and temperature, 16-5661-63

* Hot things and cold things, 15-5423-27

* How heat works for us, 15-5569-73

bolometer measures heat waves, 17-6080

can be turned into motion, or work, 15-5569-70

Heat (*continued*)

caused by vibration, illustrated by iron, 12-4157

conductors and non-conductors, 15-5427

effect on size, 15-5425

from sun, 8-2664; 9-3172

greater in dark things, 3-877

Joule's law, as to relation to work, 15-5570

latent and sensible, 16-5661

not always due to burning, 11-3839

produced by body, 14-5218

produced by friction, 11-3840

produced by radium, 2-388

relation to light, 12-4157-58

relation to motion, 13-4666-67

sense of, located in skin, 4-1419-20

specific heat, 16-5663

ways of transmission, 15-5426

For list of main articles, see 20-7621

See also Cold

Questions about

Do things weigh heavier or lighter when hot or cold? 11-3977

When water is boiling why can it not be made hotter? 13-4595

Why are dark things warmer than light things? 3-877

Why are some days hotter than others? 18-6556

Why does a full bottle keep hot longer than one half full? 10-3475

Why does heat crack wood? 17-6289

Why does heat make paper curl up? 9-3356

Why does heat make things seem to quiver? 5-1751

Why does hot water crack thick glass more easily than thin? 13-4828

Why does hot water take up more room than cold? 16-5960

Why does iron feel colder than wood? 4-1451

Why is the fire hot? 16-5846

Heath, John E., inventor, 19-7210

Heath, Sir Robert

Carolina granted to, 2-553

Heath, plant

purple, and cross-leaved, 17-6129

Pictures, 17-6129

ciliated heath (in color) 14-4989

sea heath (in color) 14-4981

showing fertilization of flower (in color) 17-6076

Heath Family, in botany, 13-4874-75

fruits belonging to, 6-2068

Heath hen, variety of grouse, 12-4364

Heather, plant, 13-4875

and fungus, 1-333

of Pacific coast, description, 19-6938-39

Heather-bell, name for harebell, 17-6125

Heating and ventilation. The providing of a uniform moderate temperature and the displacing of foul air with pure. Problems of sanitary engineers in construction work. Heating is either by direct or indirect radiation, the former when heat is generated in the room or when hot water or steam is conveyed to radiators. Indirect radiation involves the bringing-in of air heated by passage over some central station. In both systems good ventilation is needed.

Heaven

Poems about

The Better Land, by Mrs. Felicia Hemans, 18-6648

The Blessed Damsel, by D. G. Rossetti, 8-2901

Heavysege, Charles, Canadian poet, 14-5106

Hebbel, Friedrich Christian, German dramatist, 17-6414

Picture, portrait, 17-6413

Hebe, cupbearer of the gods, 9-3228

Heber, Reginald, missionary and hymn-writer, 12-4437

Picture, portrait, 12-4439

Hébert, Louis Philippe, Canadian sculptor, 14-5075

Hebrew language

clearness, 2-173-74

oldest inscription known, 7-2483

Hebrew University, near Jerusalem, note and picture, 19-7159

Hebrews, see Jews

Hebrides. About 100 inhabited and 400 uninhabited islands off the Scottish west coast. They lie in two groups, the Inner and the Outer,

GENERAL INDEX

Hebrides (*continued*)

the chief islands of the former being Lewis and Mull and South Uist, and of the latter Skye, North, Islay and Jura. Fishing and stock-raising are the chief industries. Total area, 3,000 square miles.

Hecla, volcano, height of, 7-2313

Hectograph, use for school paper, 15-5507

Hector, Prince of Troy, in *Iliad*, 6-1983-84

Hector, Annie French, *see* Alexander, Mrs.

Hedgehogs, animals, 1-318, 320

Picture, 1-317

Hedin, Sven, explorations in central Asia,

18-6588, 6590

Hedjaz, Arab kingdom, 18-6675

home of Mohammed, 18-6675

Hegira, Mohammed's flight, 11-4131

Heidelberg, Germany

castle, 18-6448

Picture, City Hall, 17-6265

Picture (grave) 12-4174

Heidelberg skull of primitive man, its period,

6-1928

Heidenstam, Verner von, Swedish author,

19-7014

Height

growth in, 14-5085

how to measure tall objects, 3-899

of children, table of, 9-3257

of tree, how to measure, 17-6145

Questions about

Are we taller in the morning than at night?

10-3732

How do we know the height of a mountain?

11-3840

Why do things seem blurred when seen from

a great height? 7-2612

Height of Land, Canada, 1-110

Heilmann, Andrew, and Gutenberg, 9-3383

Heilmann, Anton, and Gutenberg, 9-3383

Heine, Heinrich, German author, 17-6412-13

See also Poetry Index for poems and notes

Picture, portrait, 17-6413

Heir. The person entitled by law to succeed to an inheritance. In English and American law the term has reference to the person or persons to whom the real, as distinguished from the personal, property descends.

Hejnal, Polish custom, 13-4680

Heleen of Troy, 6-1983

Helena, St., mother of Constantine the Great

story about, 5-1691-92

Picture, Vision of St. Helena, 5-1692

Helena. Capital of Montana, situated at an elevation of 4,200 feet, overlooking the fertile agricultural district of Prickly Pear Valley. The Last Chance Gulch, which runs through the city, has yielded valuable gold deposits.

Heliades, daughters of the Sun, 9-3233

Helicon, Mount, in mythology, 9-3237

Heligoland. German North Sea island, about 45 miles from the mouth of the Elbe. British from 1807 to 1890, it was then ceded to Germany, who used it as a fortress up to 1919, when it was dismantled. Though rocky, it has suffered severely from erosion, and is now only three miles in circumference.

Heliograph, explanation of, 10-3732-33

forerunner of telegraph, 17-6235

Pictures, 8-2805; 10-3733

Heliopolis, Egyptian city, consecrated to the

sun, 9-3233

Helios, in ancient mythology, 9-3233

statue of, Colossus of Rhodes, 7-2604

Heliotherapy, treatment for tuberculosis,

15-5622, 5626

Heliotropes, wild, description, 18-6662

Helium

discovery and use, 11-3922; 14-5084

Forth Worth plant for manufacture of,

14-4891

lines in sun, 11-3922

relation to chemical elements, 1-20

Hell, in ancient mythology, 9-3237

Hell Gate Bridge, note and picture, 1-34

Hellebore, 14-4894

black hellebore, or Christmas rose, 14-4979

False, *see* hellebore

Hellenes, term for Greeks, 3-1070; 11-3988

Helm, steering apparatus, 14-5097

Helmholz, Herman Ludwig Ferdinand von. German physiologist and physicist; born, Potsdam, 1821; died, 1894; inventor of the ophthalmoscope.

Héloise, wife of Abélard, 13-4864

Helpful Things about a House, *see* main articles, 20-7639

Helsinki, or **Helsingfors**. Capital and chief port of Finland, on the Gulf of Finland. One of the pleasantest cities in Europe, it has a university, a fine harbor, and a great export trade.

Helst, Bartholomeus van der, Dutch painter

Picture, Portrait of unnamed woman, 8-2719

Helvetic Republic. Switzerland as reorganized by Napoleon.

Hemans, Mrs. Felicia, English poet, 12-4229

See also Poetry Index, for poems and notes

Picture, portrait, 12-4227

Hematite (FesOs). One of the commonest of the ores of iron, varying in color from red to black. Sometimes it is found in rounded shape and sometimes in solid earthy-looking masses. It is known in all parts of North America. Also called specular iron.

Heming, Arthur, Canadian author-artist,

10-3709; 15-5372

Hemlock, Water, *see* Water-hemlock

Hemlock tree

bark used as food, 12-4515

description, 13-4636, 4638

Picture, 13-4634

Hemlock water dropwort, plant, description,

16-5880

Hemming, directions for, 1-338

Hemoglobin, in blood cells, 3-804-06

Hénon, Louis, French author, 15-5367

Hemorrhage, meaning of term, 14-5000

Hemp

account of, 8-2786, 2788; 11-3791

growth in Kentucky, with picture, 13-4523

Picture (in color), 8-2997

Hemp Agrimony, plant, description, 16-5880

note on, 16-5877

Picture, 16-5877

Hemstitching, directions for, 6-2047

Hemy, Thomas M., artist

Picture. Wreck of Birkenhead, 3-886

Hen hawks, *see* Hawks—Cooper's hawk

Henbane, large number of seeds, 9-3394

Henderson, Richard, and Daniel Boone, 6-2192

helped organize government in Tennessee

6-2197

Hendricks, Thomas A., vice-president of U. S.

Picture, portrait (grave), 11-3948

Henley, William Ernest

poetry of, 12-4232-33

See also Poetry Index for poems and notes

Henner, Jean Jacques, French painter, 8-2858

Henri, Robert, American painter, 10-3454-55

Henri, Grace à Dieu, ship, 11-3916

Henrietta Maria, wife of Charles I of England

bad influence on Charles I, 11-3845

daughter of Marie de Medici, 10-3436

Maryland named for, 2-550

Henry I, king of England

life and reign, 5-1566, 1568

and Ireland, 8-2932

and the church, 8-2846

imprisoned his brother Robert, 7-2585

Henry II, king of England

life and reign, 5-1568, 1570

and Scotland, 12-4208

and the church, 8-2848

Henry III, king of England, 5-1571-72

Henry IV, king of England, 5-1684

Henry V, king of England

life and reign, 5-1684

and French wars, 10-3434

Picture, portrait, 5-1885

Henry VI, king of England, 5-1684, 1686

Henry VII, king of England

life and reign, 5-1813-14

and Columbus, 8-2978

and John Cabot, 8-2978, 2980

marriage united the houses of York and Lan-

caster, 5-1886

Henry VIII, king of England

life and reign, 5-1816-17

and Ireland, 8-2934

Pictures

portrait, by Holbein (grave), 5-1822

Foundation of St. Paul's School (grave)

5-1824

Henry IV, king of France

reign of, 10-3436

encouragement of art, 5-1873

his mother's sacrifice, 13-4581

GENERAL INDEX

- Henry IV**, emperor of Holy Roman Empire struggle with Pope Gregory, 8-2847-49; 11-3962
Pictures, at Canossa, 8-2849 at Worms, 11-3961
- Henry, Prince of Portugal**, "the Navigator" influence on exploration, 1-89; 14-5184
- Henry of Navarre**, prince, *see* Henry IV, king of France
- Henry, Joseph**, scientist and inventor, 17-6238 electrical inventions, 4-1252
- Henry, O.**, pen name of W. S. Porter, 14-5009-10 *Picture*, portrait, 14-5010
- Henry, Patrick** (1739-99). A Virginia orator and statesman of the period of the Revolution. opposed adoption of Constitution, 5-1698 St. John's Church, note and picture, 18-6830
- Henry, Fort**, *see* Fort Henry
- Henry IV**, play by Shakespeare *Picture*, 3-841
- Hens**, *see* Poultry
- Henshaw, Julia W.**, books on flowers, 15-5373
- Henson, Matthew**, reached Pole, 13-4721
- Hepaticas**, flowers, 17-6275
Poem about. Hepaticas, by Archibald Lampman, 15-5422 *Picture*, 17-6277
- Hephaestus (Vulcan)**, god, 9-3227
- Hepplewhite, George**, furniture-maker, 18-6771 *Picture*, characteristic chair design, 18-6773
- Heptarchy**. Seven Angle and Saxon kingdoms in England—Kent, Sussex, Wessex, Essex, Northumbria, East Anglia, Mercia.
- Hera (Juno)**, goddess, 9-3226
- Hera**, lost statue of Polycletus, 12-4218
- Heraclides**, *see* Hercules
- Heraclitus**
Poem about, with note. Heraclitus, by William Cory, 8-3004
- Heraldry**
account of, 1-186
lion of Scotland, 12-4208
- Herb Bennet**, flower
Picture (in color), 14-4991
- Herb Robert**, flower, 14-4974-75; 18-6570
Picture, 14-4975; (in color), 13-4880
- Herbert, George**, hymns of, 12-4438
See also Poetry Index for poems and notes
- Herbert, John Rogers**, artist
Picture, First preaching of Christianity in Great Britain, 4-1431
- Herbs as medicine**, 5-1626
- Herculaneum**, Italy
ruins of, 4-1200
wall-paintings, 2-451
- Hercules**, son of Jupiter
brief account of, 9-3228
labors of, 9-3083-84
legends of, 6-1971
rescued Alcestis from death, 8-2705
Pictures
slaying the hydra, 1-359
statues, 9-3083; 12-4465; (gravure), 12-4336
- Herder, Johann**, German author, 17-6270-71
Picture, portrait, 17-6269
- Heredity**
Question about. Why are we like our parents? 15-5613-14
Pictures, portraits illustrating, 15-5615-19
- Hereford**. Capital of Herefordshire, England. There are a fine cathedral, begun about 1079, and many old buildings.
Picture (gravure), cathedral, 16-5974
- Hereford**, breed of cattle, 4-1262
Pictures, 15-5276; (in color), facing 4-1259
- Hereros**, natives of Southwest Africa, 9-3052
- Hereward the Wake**. Anglo-Saxon hero, defender of the Isle of Ely against the Normans; flourished about 1070.
- Hergesheimer, Joseph**, novelist, 14-5012
- Herkimer, Nicholas** (c. 1715-77). American soldier of German descent, probably born in the New York county which now bears his name; fought in the French and Indian War; was mortally wounded at the bloody battle of Oriskany, August 5, 1777.
defeated British forces, 4-1168
- Herkomer, Sir Hubert von**. English landscape and portrait painter; born, Waal, Bavaria, 1849; died, Bushey, Hertfordshire, 1914.
- Hermann**, German hero, 11-3960
- Hermes (Mercury)**, a Greek god, 9-3227
Pictures, statues of (gravure), 12-4335; 13-4609
- Hermit crabs**, 16-5950-54
Pictures, 16-5951-52
with sea-anemone, 16-5953
- Hermit thrush**, *see* Thrushes
- Hermitage**, home of Andrew Jackson
Picture, 11-3941
- Hermon, Mt.** Southernmost peak of Lebanon in Syria, 9,166 feet.
- Hero and Leander**. A priestess of Aphrodite and a youth of Abydos, who met secretly in the former's tower, on the Hellespont, to which Leander swam nightly. He was drowned one stormy night, and Hero cast herself into the sea to be united to her lover in death.
- Hero of Alexandria**. Greek scientist and mathematician; lived in Alexandria about 100 B.C.; he is credited with the invention of a steam engine
- Hero stories**, *see* Stories, Golden deeds
- Herod I**, king of Judea, 19-7157
- Herodotus**, Greek historian, 16-5751
account of Egypt, 3-820
Picture, portrait, 16-5747
- Hérons**, birds
* account of, 11-4005-07
in North America, account of, 14-5018, 5020
Pictures, 11-4004; (in color), 8-2899
- Héroult type**, electric furnace, 16-5947
- Herrera, Juan de**, Spanish architect, 18-6500
- Herrick, Robert**, English poet, 6-2027
See also Poetry Index for poems and notes
Poem about. With a Copy of Herrick, by Edmund Gosse, 12-4348
- Herring**, fish
account of, 16-5775-76
eggs, number of, 15-5542
lake, *see* Lake herring
pickling and packing, notes with pictures, 11-4055
Pictures, 16-5779; (in color) 16-5784
- Herschel, Caroline**, astronomer, 1-284
Picture, portrait, 1-281
- Herschel, Sir John Frederick William**, astronomer, 1-286
made model of sun and planets, 9-3180
Picture
portrait, with father, 15-5617
- Herschel, Sir William**, astronomer, 1-284, 286
Picture, portrait, 1-281
- Hertz, Heinrich Rudolph**, German physicist
life, 4-1253
discovered electric waves, 4-1254
Picture, portrait, 17-6235
- Hertz, Henrik**, Danish poet, 19-7011
- Hertzian or electric waves**, 4-1254
and D. E. Hughes, 17-6246
and light, 17-6080-81
Clerk Maxwell's theory, 17-6240-42
- Herzegovina**. With Bosnia, Herzegovina was occupied by Austria from 1908 to 1918, when it became part of Jugo-Slavia. Mostar is the principal town. Originally Herzegovina was a part of Dalmatia and was occupied by a Slavic race in the seventh century.
added to Austria, 17-6194, 6196
- Herzen, Alexander**, Russian author, 19-6908
- Herzl, Theodore**, Jewish leader, 19-7162
- Hesiod**, Greek author, 16-5749-50
- Hesperia**, origin of name, 9-3233
- Hesperides**, in mythology, 9-3237
- Hesperornis**, prehistoric bird, 8-2758
- Hesperos**, in ancient mythology, was Venus, the evening star, 9-3233
- Hesselius, Gustavus**, portrait painter in American colonies, 9-3325
- Hessian fly**, damage from, 18-6734
- Hessians**, in American Revolution, 4-1164
- Hessonite**, a variety of garnet
Picture (in color), facing 19-7225
- Hestia (Vesta)**, goddess of fire, 9-3226
- Hevea Brasiliensis**, tree
yields Para rubber, 4-1108
- Hewitt, C. Gordon**, and conservation, 15-5373
- Hewlett, Maurice**, author, 11-3898
- Heywood, Benjamin**, and fox-raising, 13-4693
- Heywood, Thomas**, *see* Poetry Index for poem and note
- Hezekiah**, king of Judah, and Sennacherib, 2-656
- Hiawatha**, legend of, 19-6985
- Hibernation**, winter sleep of animals
probable origin, 4-1375
- Hickory, dickory, dock**, game, 8-2744
- Hickory nuts**, 6-2276

GENERAL INDEX

- Hickory trees**, 12-4248
 shagbark, 13-4640-41
Picture, shagbark, in winter, 13-4641
- Hickson, William Edward**, *see* Poetry Index for poem and note
- Hidalgo y Costilla, Miguel**, Mexican leader, 19-7136
- Hiddenite**, semi-precious stone
Picture (in color), facing 19-7225
- Hideyoshi**, Japanese ruler, 2-564
- Hiding**, directions for, in open country, 2-749
- Hierarchy**. The governing and ministering body in the Church distributed according to its several ranks. Applicable only to Roman Catholic Church and those Christian communities which retain the distinctions of ecclesiastical order and authority.
- Hieroglyphics**, writing of Egyptians, 10-3546
 Rosetta Stone, clue to, 3-814
Question about
 Why are old sign writings called hieroglyphics? 7-2486
Picture, walls of Egyptian tomb, 10-3547
- High-holes**, birds
 account of, 13-4763; 14-5134
Picture, redshafted flicker (in color) facing 14-5133
- High priest**. The chief of the Jewish priesthood. Office seems to have originated during the Captivity, when the chief priest in Jerusalem became the official representative of the nation. His duties lay in the administration of the sanctuary and the sacred service.
- Highfliers**, variety of pigeon, 12-4284
- Highwater shrub**, 14-5161-62
Picture, 14-5161
- Hilda, St.** Princess of Deira who was made abbess of a monastery at Hartlepool by St. Aidan, and afterward founded her famous abbey at Whitby. She died in 680, after a life of great wisdom and piety, during which she was consulted by kings and rulers.
- Hildebrand**, *see* Gregory VII
- Hill, Aaron**, *see* Poetry Index for poem and note
- Hill, George William**, Canadian sculptor, 14-5075
- Hill, James Jerome** (1838-1916). Born near Guelph, Ontario, Canada. Became American citizen and great railway-promoter.
- Hill, Rowland**, suggested use of postage stamps, 8-2653
- Hill-robins**, birds, one kind of babblers, 9-3285
Picture, 9-3287
- Hillingford, R.**, artist
Picture, scene in Peninsular War, 14-5043
- Hills**, how formed, 2-629-34
Question about. Why do the hills look blue at a distance? 9-3102
- Himalaya Mts.**, 18-6584
 on map, 8-2694
Picture, Mount Kinchinjunga, 7-2317
- Hind and the Panther**, poem by Dryden, account of, 4-1358
- Hindenburg, Field-Marshal Paul von**. Born, 1847; educated, Military Cadet Corps; Commander-in-chief on the Eastern Front and Field-Marshal, 1914; Chief of Staff of Armies in the Field, 1916; retired, 1919; elected President of Germany, April, 1925.
- Hinduism**, religion, 8-2700, 2702
- Hindustan**, northern part of India, 8-2696
- Hip-joints**, in man
 ligaments hold body erect, 5-1562
- Hipparchus**, Greek astronomer, 1-201
- Hipparion**, ancestor of horse
Picture, 6-1926
- Hippocrates**, "the father of medicine," work and influence, 8-2722-23
 influence on medical study, 2-702
- Hippocratic oath**, taken by physicians, 8-2723
- Hippopotamus**, account of, 5-1723-24
 toy, how to make, 2-611-12
Pictures, 5-1717-23
- Hissar animals**, India, 4-1262
- Historians**
 * American, 13-4820-23
 Canadian, 14-5105; 15-5367
 * English, 9-3201-05; 3312
 of ancient Greece, 16-5751
- History** (study)
 game about, "What is It?" 8-3023
 notebook, how to make, 17-6392
See also names of countries—history
- History** (continued)
 historical poems, *see* 20-7679
 historical stories, *see* 20-7699-7700
- Hitches**, sailors', how to make, 9-3378-79
- Hittites**, art shows Assyrian influence, 11-3876
- Hoang-ho**, river in China, *see* Hwang-ho
- Hoarfrost**, description, 14-4905
- Hoarseness**, cause of, 4-1354
- Hoatzin**, primitive bird, 8-2758
 account of, 12-4368
Pictures, 12-4363
- Hobart, Garret A.**, vice-president of U. S.
Picture, portrait (gravure) 11-3943
- Hobart**. Capital and port of Tasmania, with a fine harbor. It has flour-mills, tanneries, saw-mills and foundries, and exports apples, gold, tin and copper.
- Hobbema, Meyndert**, Dutch artist, 5-1592
Picture, Avenue at Middelharnais, 5-1587
- Hobbes, Thomas**. English political and philosophical writer, author of *The Leviathan*; born, Malmesbury, 1588; died, 1679.
- Hobby, European**, bird, 10-3756
Pictures, 10-3755; (in color) 9-3282
- Hobby-horse**
Poem about. Hobby-Horse (German folk-song), 7-2367
- Hockey, Field**, how played, 16-5885-86
- Hockey, Ice**, game
 how played, 10-3694
 in Canada, 10-3693-96
 rules for, 14-5113-14
Picture, 10-3695
- Hodgson, William Noel**, *see* Poetry Index for poem and note
- Hoe, Richard M.** (1812-86). American inventor of a printing-press.
Picture, portrait, 9-3383
- Hoe type revolving machine**, 9-3389-90
- Hofer, Andreas**, patriot of the Tyrol, 13-4588
Pictures, portrait, 13-4583
 as governor of Tyrol, 13-4589
- Hoffman, Heinrich**, *see* Poetry Index for poems and notes
- Hoffmann, Ernst Theodor Wilhelm**
 Nutcracker and the king of mice, (story), 10-3600-04
- Hog-nosed snake**, *see* Puff-adder
- Hogarth, William**, English painter
 characteristics of his art, 6-2004-05
 life and work, 7-2327-28
Pictures
 Portrait of himself, 7-2329
 Portrait of Polly Peachum, 6-2005
 Portrait of the Artist and his Dog, 6-2005
 Portrait of the Artist's Sister, 6-2005
 The Artist's Servants, 9-3072
- Hogg, James**, poet, 12-4228
 as song-writer, 10-3610
See also Poetry Index for poems and notes
- Hogg, James**, poet, 12-4228
Picture, portrait, 10-3605
- Hogs**, *see* Pigs; Boars, Wild
- Hohenheim, Theophrastus Bombastus von**, *see* Paracelsus, Philippus Aureolus
- Hohenlinden, Battle of**. Great victory of the French under Moreau in 1800 over the Austrians.
Poem about. Hohenlinden, by Thomas Campbell, 3-1009
- Hohenzollerns**. Family name of the royal house of Prussia. In 1871 the Hohenzollern William I became German Emperor. Frederick III followed in 1888, and William II in the same year. With the defeat of Germany in the World War, the Hohenzollerns were deposed, and the ex-Kaiser now resides in Doorn, Holland.
- Hokku**, type of Japanese poem, 15-5460-61
- Holbein, Hans, the Elder**, German painter, 4-1345
Picture
 Death of Mary, 4-1347
- Holbein, Hans, the Younger**, German painter
 life and work, 4-1345, 1348
 painting in England, and influence there, 6-2000
Pictures
 * group of pictures (gravure) 4-1349-52
 Portrait of Edward VI (gravure) 5-1823
 Portrait of Henry VIII (gravure) 5-1822
- Holberg, Ludvig von**, Norwegian baron, Danish dramatist, 19-7011
Picture, portrait, 19-7009
- Hold of a ship**, 14-5002
- Hold fast! Let go!**, game, 8-2743

GENERAL INDEX

Holidays

Days we celebrate, **6-2087-95**

See also names of holidays

Holland, John P. (1841-1914). Born in Ireland. Emigrated to the United States; invented the modern submarine.

Holland, Josiah Gilbert, see Poetry Index for poem and note

Holland, Norah M., Canadian poet, **14-5110**

Holland, Maritime kingdom of western Europe; area, 12,587 square miles; capital, The Hague. Flat and low, it is intersected by a network of waterways, including the mouths of the Rhine, Maas and Scheldt, and there are about 2,000 miles of canals. Agriculture, including dairy farming, cattle-raising, and the cultivation of bulbs, is very important, and there are many and varied manufactures. The ports of Amsterdam and Rotterdam are easily the largest cities; others are: Utrecht, Haarlem, Leyden, Groningen, Arnhem, Dort, Deventer, Nijmegen, Delft and Flushing. Nearly all the people are Protestants. The Netherlands have always had a powerful mercantile marine, and their colonies have an area of 788,000 square miles.

colonies, **15-5562, 5564, 5566, 5568**

in South Africa, **9-3048**

in West Indies, **19-7099-7104**

* description, **15-5555-57, 5566-68**

* history, **15-5556-64**

land reclaimed from sea, **17-6288**

map, **15-5557**

painting, see Painting, Dutch

resources, **15-5566**

song, patriotic

Let him in whom Dutch blood flows, **17-6252**
struggle with Portuguese in Brazil, **19-7040, 7042**

trade with Japan, early, **2-564**

universities, **15-5568**

For list of main articles, see **20-7595**

Poem about. Leak in the Dyke, by Phoebe

Cary, **5-1777**

Pictures, **15-5554-67**

paintings of scenes in Holland, **5-1591**

Holley, Marietta, American author, **13-4817**

Holly trees

* account of, **12-4384-86, 4389**

varieties, **11-4020**

western, see Oregon grape

Pictures

fruit (in color), **11-4026**

tree, flower and leaf, **12-4389**

Holmes, Hogden, invented machine to take seeds from cotton, **6-1912**

Holmes, Oliver Wendell, American author

* life and writings, **13-4728**

note and portrait, **13-4724**

See also Poetry Index for poems and notes

Holstein, taken from Denmark by Prussia, **11-3970**

Holstein (Holstein-Friesian), breed of cattle, **4-1262**

Pictures, **9-3211**; (in color), facing **4-1258**

Holston River. American river, having its source at the junction of the North and South Forks rivers, Tennessee. Flows into the Tennessee River. 350 miles.

Holy Alliance (1511-72). Between the Pope, Spain, Venice and Switzerland; also an alliance in 1815 between the Tsar of Russia, Emperor of Austria, and King of Prussia. Its object to perpetuate the existing royal houses by a joint resistance to change.

Holy Cross, Mount of. Picture, **18-6431**

Holy Roman Empire

and Germany, **11-3962**

and Italy, **12-4408**

Francis II, last ruler, **11-3966, 3968**

Holyrood. Famous abbey ruins and Scottish royal palace near Edinburgh. The abbey, founded in 1128 by David I, was reduced to ruins in 1768; the palace, first built 1498-1503, was finally rebuilt by Charles II in 1671-79.

Poem about. Holyrood, by W. H. Ogilvie, **16-6022**

Home, Grizel, see Hume, Grizel

Home, Sir Patrick, see Hume, Sir Patrick

Home

Poems about

Home, Sweet Home, by J. H. Payne, **1-322**

Home no more Home to Me, by R. L. Stevenson, **9-3110**

Home, Sweet Home, how written, **18-6510**

Home Rule bill for Ireland passed in 1914, **8-2938**

Homer, legendary Greek poet

account of, **16-5747-48**

description of ancient ship, **11-3912**

Iliad, story of, **6-1983-84**

observation on lightning, **16-5666**

Odyssey, story of, **6-1984-86**

parodies of, **16-5748-49**

Pope's translations of, **4-1359**

Pictures

homage of poets, **16-6749**

statue of, **6-1983**

Homer, Winslow, American painter, **10-3448-49**

Pictures

Northeast (gravure), **10-3459**

The Wreck (gravure), **10-3459**

two sketches, American Civil War, **7-2443**

Homeric, ship

Picture, promenade of, **12-4431**

Honduras. Most undeveloped of the Central American republics; area, 44,275 square miles; capital, Tegucigalpa. Cattle, fruit, timber, india-rubber, sarsaparilla and indigo are exported.

Honduras, British. British Central American colony; area, 8,598 square miles; capital, Balize. Cedar, logwood, mahogany, bananas, sponges and tortoiseshell are exported.

account of, **9-3190**

settlement of, **19-7103-04**

Picture, **9-3181**

Honey

from laurel, poison, **13-4776**

U. S. production, 1919, **9-3208**

use for sweetening before sugar, **17-6221-22**

Question about. When bees take honey from flowers do flowers get more? **4-1233**

Picture, bees and honeycomb, **17-6223**

Honey-eaters, birds, **9-3138**

Honey-guides, birds, **9-3370**

Honey-locust, tree, **12-4508-14**

Picture, **12-4514**

Honeycreepers, birds, **8-2972**

Honeysuckers, birds

Picture, cardinal honeysucker (in color), **12-4370**

Honeysuckle

glaucus, **15-5605, 5608**

hillside varieties, **15-5608**

meadow honeysuckle, see Clover

note on, **15-5605; 17-6125**

wild, name for azalea, **13-4776**

Pictures, **17-6125**

glaucus honeysuckle, **15-5605**

Pictures (in color), **13-4878; 17-6073**

fruit, **11-4024**

Hong-Kong. British Chinese colony, comprising Hong-Kong island and the Kowloon peninsula; area, 391 square miles; capital, Victoria. Hong-Kong has a splendid port, ranking fifth in the world in order of tonnage entered and cleared. It became British in 1842.

account of, **9-3186**

description, **2-436**

Pictures

peak overlooking harbor, **9-3185**

Victoria, the capital, **2-431**

Honi soit qui mal y pense. French for "Shame be to him who thinks ill of it"—the motto of the Order of the Garter. An exclamation popularly believed to have been uttered by Edward III of England when he tied about his leg a garter which the Countess of Salisbury had dropped while dancing.

Honolulu, Hawaii

description, **15-5448**

population, **10-3584**

Pictures, **15-5449**

Hooch, Pieter de, Dutch painter, **51-1594**

Hood, John Bell (1831-79). American soldier born in Kentucky. He graduated from West Point, but entered Confederate service in 1861, and was rapidly promoted.

against Sherman, **7-2440**

defeated by Schofield and Thomas, **7-2440**

Hood, Thomas, poetry of, **12-4229**

See also Poetry Index for poems and notes

Picture, portrait, **12-4227**

Hood, Mount, Oregon, description and picture, **9-3206**

Hoogh, Pieter de, see Hooch, Pieter de

Hoogli River, India, not navigable, **8-2698**

GENERAL INDEX

Hook of Holland. Dutch cape at the mouth of the New Waterway, an artificial channel leading to Rotterdam. The voyage from Harwich in Essex to the Hook of Holland takes seven hours.

Hooke, Robert, and the telephone, 17-6241
studies with microscope, 13-4669
Picture, portrait, 13-4671

Hooker, Sir Joseph, cultivated rubber seeds, Kew Gardens, 4-1408

Hooker, Joseph (1814-79). American soldier born in Massachusetts. He graduated from West Point and served with credit in the Mexican War. In the Civil War he served first in the East; commanded Army of Potomac Jan.-June, 1863; was relieved after defeat at Chancellorsville, and afterward served in the West. at Chancellorsville, 7-2436
Picture, portrait, 7-2437

Hooker, Rev. Thomas, helped found Hartford, 2-554

Hoop-snake, belief about, 1-359

Hoopoes, birds, 9-3373
Pictures, 9-3369; (in color), 9-3130

Hoops, games played with, 12-4496

Hoot owl, 13-4762

Hooter, name for blue grouse, 14-5126

Hoover, Herbert C., president of U. S. administration, 8-2674; 11-3950
life, outline of, 11-3954
Picture, portrait (graveure), 11-3945

Hope, Anthony, pseudonym, *see* Hawkins, Anthony Hope

Hope diamond, account of, 19-7234

Hopewell, ship of Frobisher and Hudson, 14-4971

Hopi Indians, of Arizona desert, 9-3028
note on, with picture, 18-6620
Pictures, 9-3029

Hopkins, Essek, and U. S. navy, 17-6326

Hopkinson, Francis, wrote Battle of the Kegs, 18-6512

Hopkinson, Joseph, wrote Hail, Columbia! 18-6513
See also Poetry Index for poem and note

Hopper, E., hymn-writer, 12-4438

Hoppner, John, English painter, 6-2112
Pictures
Countess of Oxford (in color), 7-2338
George IV, king of England (graveure), 6-2120
Mrs. Gardiner and Her Children, 6-2112
Mrs. Jordan (graveure), 6-2116
Sackville Children (graveure), 6-2118

Hops
kilns for drying, 7-2484
use of, 11-4020
Picture (in color), 11-4022

Hopscotch, game, 3-1153
with cards, game, 4-1510-11

Horace (Quintus Horatius Flaccus), Roman poet, 16-5911-12
his song, Integer Vitæ, 10-3611
Pictures, portrait, 16-5907; in group, 16-5906

Horatius
Poem about. How Horatius Kept the Bridge, by Lord Macaulay, 10-3639

Horehound, flower
Pictures (in color)
black horehound, 14-4990
white horehound, 14-4984

Horizon, distance from eye, 19-7245-46

Hormones, products of glands, 9-3224

Horn. The connective tissue of the epidermis hardened and thickened till it forms a tough fibrous material. Sometimes borne on the heads of animals, as in a stag; sometimes forms most of outer covering, as in armadillos or turtles; sometimes arms the feet or toes, as in birds, reptiles and mammals. Used in the manufacture of many useful and ornamental articles: handles for umbrellas, knives, forks, combs, etc.

Horn, Cape. Southernmost point of South America, on an island off Tierra del Fuego, in Chile. A bare rock 1,466 feet high, and notorious for its storms, it was discovered in 1616 by the Dutch navigator Schouten, who named it after Horn in Holland.

Hornaday, William Temple, scientist
study of animal intelligence, 8-2716

Hornbeam, tree, 13-4640
description, 12-4246, 4257
Pictures, 12-4257
in winter, 13-4639

Hornbills, birds, 9-3373-74
Pictures, 9-3366-67

Horneblende. A mineral, the black, dark green or brown variety of aluminous amphibole. It contains iron and occurs as crystals and in columnar, fibrous and granular form.

Horned pout, see Bullheads

Hornel, E. A., artist
Pictures
The Listeners in the Wood, 9-3309
Summer, 18-6525

Hornet, ship, victory over Peacock, 5-1704; 17-6330

Hornets, description, 17-6230
Picture, (in color) facing 18-6721

Horoscope. The representation made of the aspect of the heavens at the moment of a person's birth. By it an astrologer professes to be able to tell the events of the person's life. Casting a horoscope is an ancient form of fortune-telling.

Horrocks, Jeremiah, astronomer, 1-282

Hors de combat. French for "out of the fight"; disabled.

Horse, Wooden, Trojan war, 6-1982-88

Horse-chestnut trees
account of, 12-4381-82, 4387
flowers of, 17-6274
not related to chestnut, 12-4382
Pictures
fruit (in color), 11-4027
tree, flower and leaf, 12-4387

Horse latitudes
Question about. What are the Horse Latitudes mentioned in sea stories? 7-2486

Horse mackerel, see Tuna

Horse power, meaning of term, 2-689

Horse-racing, game, 3-903

Horseradish, 7-2624

Horses
* Horse family, 6-2011-20
breeds of, 6-2016, 2018
early forms, 1-95; 6-2012-13
early use in war, 6-2014
hoofprints, picture and note, 3-1024
hoofs correspond to nails, 14-5220
how first tamed, 6-2013-14
in America, before Ice age, 6-2013
in Great Britain in early times, 6-2014
of Arabs, 18-6736
photographs in motion, by Muybridge, 18-6594
story about, Black Diamond, 15-5326-28

Poems about
Arab's Farewell to his Steed, by Mrs. C. S. Norton, 2-608
Bell of Atri, by Longfellow, 19-6869
Dobbin's Friend, by M. M. Dodge, 5-1887
The Horse, by Jane Taylor, 15-5522

Questions about
Do a horse's eyes magnify? 17-6178
How is a horse measured? 6-2252
Why do horses need to wear shoes? 15-5366
Why does a horse wear blinkers? 9-3356

Pictures
different parts of, with names, 6-2016
illustrating various breeds, facing 6-2010-11
in Parthenon frieze, 3-1069
Kentucky breeding farm and race-track, 13-4521
Mongolian wild horse, 6-2017
types of, 6-2015

Horsetails, plants
account of, 10-3724
in Carboniferous period, 3-884; 4-1296
Pictures, 10-3720

Horseweed, Picture, 9-3396

Horsley, Sir Victor, discoveries about brain, 15-5492
Picture, portrait, 15-5481

Horus, a god of ancient Egypt
legend of, 3-810, 812

Hosmer, Frederick Lucian, see Poetry Index
for poem and note

Hosmer, Harriet, American sculptor, 14-4934

Hospital of St. Cross, oldest almshouse in England, 18-6430

Hospitaliers. Order of monastic knights (founded, 1050); same as Knights of St. John of Jerusalem, Knights of Malta, and Knights of Rhodes. The badge of the order is the well known Maltese cross.

Hostage. A person given as a pledge or security for the performance of the conditions of a treaty or agreement.

Hot springs in New Zealand, 7-2574

GENERAL INDEX

- Hot Springs Reservation**, Arkansas national park, 7-2291
- Hot Time in the Old Town To-night**, song by J. Haydon, 18-6514
- Hôtel Cluny**, Paris, 18-6494-95
- Hôtel de Rambouillet**, French salon, 18-6711
- Hôtel de ville**, French for "town hall."
- Hottentots**. A nickname given by the first colonists to the primitive race that originally ranged all over South Africa, but to-day is confined mainly to Great and Little Namaqualand. They are gradually being merged into the Bantu and other races.
in Cape Colony, 9-3047
and Robert Moffat, 2-468
- Houdon, Jean Antoine**, French sculptor, 13-4703-04
statues made in U. S., 14-4933
- Pictures**
bust of Benjamin Franklin, 13-4703
Louise Brogniart, 13-4705
- Hough, Emerson**, novelist, 14-5010
- Hounds**, see Dogs
- Hound's tongue**, flower
Picture (in color), 14-4990
- Hours**
Question about. Has the day always been divided into 24 equal hours? 11-4132
- Hours**, in Greek mythology, 9-3228
- House of Commons**, Canada, see Canada—government
- House of Commons**, England
Question about. Who is the speaker of the House of Commons? 11-4135
See also England—Parliament
- House paper-chase**, game, 8-2744
- Houses**
* How early people were housed, 5-1655-58
Eskimo snow-house, 7-2564
huts of various peoples, with pictures, 5-1656-57
in Japan, 2-572
modern frame house, with picture, 5-1658
northernmost in America, 7-2556
primitive, of stone, 5-1657
Poem about. My House, by Louis Untermeyer, 6-2242
Question about. Why do houses seem crooked when we look across a fire? 5-1752
- Pictures**
African natives building roof, 9-3057
early lake-dwelling, 11-3965
early types, 8-3010
huts of Isle of Skye, 15-5639
log cabin of pioneer, 6-2189
of American Indians, 1-164; 17-6201
of South Sea islands, 9-3303
South Sea house, on piles, 9-3295
trapper's cabin, 12-4338
various types of dwellings, 5-1655-58
- Houses of Parliament**, London, England
Picture, 12-4359
- Housing** in Canal Zone, 1-366-67
- Housman, Alfred Edward**, poetry of, 12-4234
- Houston, Sam** (1793-1863). An American soldier and political leader. Defeated the Mexicans at the battle of San Jacinto in 1836. Conspicuous in the early life of Texas.
Sam Houston Day in Texas, 6-2094
- Houston**. Railway and commercial centre in Texas, trading in cotton, rice, sugar and lumber.
- Hover-flies**, 17-6423
- How, William Washam**, as hymn-writer, 12-4436
Picture, portrait, 12-4439
- How the earth was made**, * 1-141-44
- How life goes round and round**, * 1-117-21
- How man learned to write**, * 10-3545-53
- How man makes stone**, * 7-2305-12
- How our bodies are built up**, * 5-1559-63
- How plants serve mankind**, * 5-1623-28
- How sun and wind made the hills**, * 2-629-34
- How to eat**, * 6-2083-86
- Howard, Alice G.**, see Poetry Index for poem and note
- Howard, John**, prison reformer, 7-2296
- Howard, Thomas**, see Arundel, Earl of
- Howe, Elias**, inventor of sewing-machine, 19-7213
Picture, portrait, 19-7201
- Howe, John Ireland**, invented machine to make solid-headed pins, 9-3042
- Howe, Joseph**, Canadian leader, 14-5105
- Howe, Mrs. Julia Ward**
wrote Battle Hymn of the Republic, 18-6513
See also Poetry Index for poem and note
- Howe, Richard**, fourth viscount and first earl (1726-99). British admiral who commanded in American waters, 1776-78.
in America, 4-1166
- Howe, Samuel G.**, American surgeon
bravery in Greco-Turkish war, 13-4580
- Howe, Sir William** (1729-1814). British soldier, who led the storming party at Quebec and the attack at Bunker Hill. In 1776 he succeeded Gage in the chief command of the land forces, while his brother, Lord Howe, commanded the fleet. Both were opposed to making war on the colonists, and both resigned in 1778.
around New York, 4-1166
around Philadelphia, 4-1168-69
delays sending aid to Burgoyne, 4-1168
- Howe Company**, for making pins, 9-3042
- Howells, William Dean**, American author, 13-4818
Picture, portrait, 13-4819
- Howitt, Mary**, see Poetry Index for poems and notes
- Howitt, William**, see Poetry Index for poem and note
- Howleglass**, the merry jester, stories of, 8-2962
- Huang-ho**, river in China, see Hwang-ho
- "Hub of the Universe"**, name for Boston, 17-6177
- Huckaback**, a kind of linen
making table-cover from, 14-5118
origin of name, 14-5118
- Huckleberries**, 6-2064, 2068; 13-4776
Picture, with note, 13-4777
- Hudson, Henry**
* life of, 14-4971
arctic explorations, and death, 8-2983
claimed Hudson River for Dutch, 2-550
discovery of Hudson River, 1-251
set adrift by his crew, 11-4109
Poem about. Henry Hudson's Last Voyage, by Henry van Dyke, 11-4109
- Pictures**
portrait, 1-245; 8-2977
adrift in Hudson Bay, 11-4109
in the Half Moon, 1-247
- Hudson, Thomas**, teacher of Sir Joshua Reynolds, 7-2332
- Hudson, William Henry**, author, 11-4002
- Hudson Bay**. Inland sea in northeast Canada, covering 400,000 square miles. It is connected with the Arctic Ocean by Fury and Hecla Strait and Fox Channel, and with the Atlantic by Hudson Strait, but is open for navigation for only three months in the year. Henry Hudson explored it in 1610.
- Hudson Elver**, also called North River. River of New York State. It rises in the Adirondack Mountains and is 300 miles long, having, with the Mohawk, a drainage area of 13,370 square miles. Troy, Albany and New York stand on its banks, and it is tidal and navigable up to Troy. Course through beautiful scenery. On its banks stands historic West Point. Above New York are the fine Palisades.
discovery by Henry Hudson, 1-251
Palisades, formation of, 4-1401
- Hudson River school of painting**, 9-3332, 3334; 10-3447
- Hudson River tunnels**. There are four double tunnels under the Hudson River: Pennsylvania Railroad Station, New York, to Weehawken, N. J., completed in 1910; Hudson and Manhattan Railroad System, north tunnels from Jersey City to Morton St., New York, finished in 1908; south tunnels from Jersey City to Cortland, Church and Fulton Sts., New York, completed 1909; Holland tunnel, the New York-New Jersey Vehicular Tunnel, begun in 1920 and by 1926 tunnel structure completed from Broome St., New York, to Provost St., Jersey City.
- Hudson's Bay Company**
* account of, 12-4338-40
sold land to Canadian government, 4-1489; 12-4340
Picture, trading post, Fort Resolution, 7-2559
- Huenefeld, Baron Gunther von**, passenger in Bremen, 1-182
- Huerta, Victoriano**, president of Mexico, 19-7140
- Huggins, Sir William**, astronomer, 1-286
Picture, portrait, 1-281
- Hugh Capet**, king of France, 10-3432

GENERAL INDEX

- Hughes, David Edward**, inventor, 17-6244, 6246
Picture, portrait, 17-6243
- Hughes, Thomas**, English author
 note on life, 14-5149
- * **Tom Brown's Schooldays**, quotations and summary, 14-5149-55
- Hugo, Victor**
 extract from novel, Ninety-three, 18-6717-19
- * **Les Misérables**, quotations and summary, 11-3861-72
 note about, 11-3861
 rank in literature, 18-6717
See also Poetry Index for poem and note
Pictures, portraits, 18-6559, 6717
- Huguenots**
 colonies in America, 1-246
 in North Carolina, 2-553
 given religious freedom in Canada, 2-679
 massacre of St. Bartholomew's Day, 10-3436
 persecuted in France, 10-3434, 3440
- Hula bird**, 8-2895
Picture, 8-2895
- Hull, Edward**, and age of Welsh coal-fields, 3-786
- Hull, Isaac**, captain of the Constitution, 17-6329
- Hull, William**, American general
 surrender at Detroit, 1812, 3-945
- Hull, Professor**, and theory of light, 16-5809-10
- Hull of a ship**, 14-5002
- Hulls, Jonathan**, patented a steamboat, 17-6398-99
 drawings of his vessel, 17-6399
Picture, portrait, 17-6397
- Humanism**, Renaissance period, definition of, 17-6297
- Humayun**, father of Akbar, 8-2824
Picture, portrait, 8-2821
- Humboldt, Alexander von**, German naturalist, 2-591
Pictures, portrait, 2-589
 portrait (statue), 2-596
- Humboldt glacier**, 7-2216
- Humboldt River**. American river, rising in Elko County, Nevada. 375 miles.
 enters Great Basin, 19-6841
 no outlet, 19-6841
- Hume, Alexander**, *see* Poetry Index for poem and note
- Hume, David**, as essay writer, 8-2865
- Hume, Grizel**, heroism of, 2-441-43
Picture, 2-440
- Hume, Sir Patrick**, Covenanter, 2-441-43
- Humery, Conrad**, aided Gutenberg, 9-3384
- Humidity**. The moisture or aqueous vapor present in the air. When it becomes visible it is called dew, fog, mist, haze, cloud, rain, etc., according to the size of the drops of water or the method in which the vapor condenses. The point at which the air reaches complete saturation is designated by 100 on this continent; partial saturation, by smaller numbers.
- Humming-birds**
 account of, 9-3371; 13-4831; 14-5143
 habitat in U. S., 14-5022
Pictures, 9-3366
 rufous humming-bird (in color), facing 14-5133
- Humor**
Poetry
 Blind Archer, by Conan Doyle, 7-2526
 Butterfly and the Snail, by John Gay, 7-2638
 Darius Green and his Flying-machine, by J. T. Trowbridge, 18-6795
 Discontented Apple, by Weatherly, 5-1888
 Dispute between Nose and Eyes, by William Cowper, 11-4116
 Elegy on the Death of a Mad Dog, by Oliver Goldsmith, 3-1141
 Heathen Chinese, by Bret Harte, 4-1381
 The Horse, by Jane Taylor, 15-5522
 John Gilpin, by William Cowper, 5-1639
 Limericks, by Edward Lear, 2-490-91; 3-1012
 The Mountain and the Squirrel, by Emerson, 3-846
 Priest and the Mulberry tree, by T. L. Peacock, 16-5708
 Retired Cat, by William Cowper, 5-1780
 Terrible Ball, by M. M. Dodge, 3-848
 Tragic Story, translated by W. M. Thackeray, 3-1139
 The Wind and the Moon, by Macdonald, 16-5711
- Humor—Poetry (continued)**
 Wonderful One-Hoss Shay, by O. W. Holmes, 9-3269
- Hundred Days**. March 29 to June 22, 1815, Napoleon's short reign from the time he quitted Elba to his abdication after defeat at Waterloo.
- Hundred Years' War**, between France and England, 10-3433-34
- Hungary**. Central European country occupying the greater part of the Great Plain of the Danube; area, 36,000 square miles; capital, Budapest. Though greatly reduced in size since 1918, it still retains some of the most fertile agricultural regions in Europe, and grain of the highest quality is produced. Agriculture and stock-raising are practically the staple industries. The people are mostly Magyars, and nearly all Roman Catholics; Szeged and Debreczen are the largest towns.
 * history and description, 17-6339-42
 * history, combined with Austria, 17-6192-96
 joined to Austria before Thirty Years' War, 11-3966
 Kossuth's struggle to free, 13-4590
 map, 17-6197
 monarchy now, under a regent, 18-6460
 Rumania controls southern part, 14-4922
 stamps, rare, 16-5888
 territorial losses since World War, 17-6340; 18-6460
See also Magyars
Pictures
 city scenes, 17-6338
 showing life of the people, 17-6341
- Hunger**
Questions about
 What makes us say we are hungry? 5-1808
 Why do we not growl like an animal when we are hungry? 14-5086
- Huns**, invasion of Europe, 18-6586, 6588
- Hunt, Leigh**, English author
 as essay writer, 8-2866
 at burning of Shelley's body, 7-2492
 friend of Keats, 7-2493
See also Poetry Index for poems and notes
Picture, portrait, 8-2865
- Hunt, Walter**, and sewing machine, 19-7213
- Hunt, William Holman**, English painter, and Pre-Raphaelites, 6-2236
Picture, Hireling Shepherd (gravure), 6-2238
- Hunt, William Morris**, American painter, 9-3333
Picture, Flight of Night (gravure), 10-3462
- Hunt the ring**, game, 8-2743
- Hunt the slipper**, game, 8-2743
- Hunt the stag**, game, 12-4496
- Hunter, John**, physician, 8-2728
Picture, portrait, 8-2721
- Hunter, William**, physician, 8-2728
- Hunting**
 by Eskimos, 7-2565-66
 Indians as hunters, 12-4341
Poem about. Hunting Song, 6-2153
Picture. Eskimo throwing spear, 7-2565
- Huntington, Anna Hyatt**, American sculptor, 14-4940
Picture, Jeanne d'Arc, 14-4935
- Hunyadi, John**. Hungarian soldier and ruler; born, Hunyad, Transylvania, 1387; died, Semlin, 1456.
 resisted Turks, 13-4798
- Hurdle games** for little children, 5-1891
- Huron, Lake**. One of the five Great Lakes, lying between Ontario and Michigan. 23,200 square miles in extent, it is connected with Lake Erie by the St. Clair and Detroit rivers; the Sault Ste. Marie canals, which avoid a series of rapids, provide a navigable waterway to Lake Superior.
 and the country adjacent, 6-1956
- Hurricane**, from a Caribbean word, the name for a very violent wind-storm in the West Indies. It is now used to denote such a wind, sometimes accompanied by thunder, lightning and rain, in other parts of the world, chiefly in tropical regions. In the China Sea and the East Indies these storms are called typhoons.
- Husband who was to mind the house** (story), by Kay Neilsen, 3-1099
- Huss, John**. Bohemian religious reformer; born, Husinetz, near Rudweis, 1369; burned at Constance, Baden, 1415.
 persecuted, 13-4798
 work of, 17-6342

GENERAL INDEX

Hussein, Ibn Ali, king of the Hedjaz, 18-6674-75
Hussey, Obed, invented reaping machine, 19-7210
Hussite Wars (1419-36). Between followers of John Huss in Bohemia and the forces of the German emperor and the pope.
Hutchinson, Mrs. Anne, life, 14-5267-68
Huts, *see* Houses
Huxley, Thomas Henry, English scientist, 2-596; 11-4002

Picture, portrait, 2-589

Huygens, Christian, astronomer, 1-283

Hwang-ho, or Yellow River. Second river of China. Rising in the Kwen Lun, it drains 400,000 square miles in northern China, the immense quantities of yellow earth it carries down into the Gulf of Pechili having given the Yellow Sea its name. It is of little use, however, for navigation, and passes few large towns except Lanchow and Tsinan. 2,700 miles.

floods of, 2-422

Hyacinths, flowers

account of, 19-7172

description of, for game, 16-5771

wild, note on, 17-6126

Pictures

English hyacinth (in color), 14-4987

wild hyacinth, 17-6126

Pictures (graveure), 19-7180

grape hyacinth, 19-7180

Hyades, in mythology, 9-3233

Hybrid. The offspring of the union of a male of one race, variety, species or genus with the female of another. By many plant- and animal-breeders the term hybrid is limited to the cross between different species, crossbreed being used for a cross between races or varieties of the same species. A mule is the offspring of a donkey and a mare.

Hyde, Edward, first earl of Clarendon. English statesman and historian; born, Dinton, Wiltshire, 1608; died, Rouen, 1674.

history of the Great Rebellion, 9-3201-02

Hyde, Edward, 3rd earl of Clarendon

proprietor in Carolina, 2-553

Picture, portrait, 2-549

Hyderabad. Fourth largest Indian city, capital of the Nizam's dominions, which form the largest and most populous of the internal states.

Hydra, fabulous monster

Picture, Hercules slaying hydra, 1-359

Hydrangea, Wild, 19-7092

Picture, 19-7093

Hydraulic cranes, note on, 15-5432

Hydraulic elevator

description, 4-1216-17

diagrams, 4-1218-19

Hydrochloric acid, in stomach, 6-2084

Hydrogen

and protoplasm, 2-664

atom, electricity in, 12-4290-91

boiling point of, 8-3014

liquefied, 15-5426

relation to chemical elements, 1-20

specific gravity, 14-5038

sulphureted, how removed from coal-gas,

2-636

Hydrometer, account of, 14-5037

Hydrophobia, 15-5482

Hydrophytes, class of plants, 16-5727

Hydroplane, definition of, 1-174

Hyenas, animals, 2-502

Picture, striped hyena (graveure), 2-498

Hygeia, goddess of health, 9-3234

Hygiene

of children, *see* Children—care and hygiene

See also Food; Exercises

Hygiene, Public, *see* Public health

Hygrometer, measurer of moisture, 3-1028

Hymen, god of marriage, 9-3234

Hymns

Abide with Me, by H. F. Lyte, 12-4349

All Things Bright and Beautiful, by Mrs.

Alexander, 12-4273

Angels Holy, High and Lowly, by Stuart

Blackie, 10-3739

Blessed Are They That Mourn, by W. C.

Bryant, 19-6873

Child's Evening Prayer, by A. P. Graves,

2-611

Crossing the Bar, by Tennyson, 4-1382

Day Thou Gavest, by John Ellerton, 6-2243

Eternal Father, Strong to Save, by W.

Whiting, 19-6871

Hymns (*continued*)

Eternal Ruler of the Ceaseless Round, by J.

W. Chadwick, 6-2150

Evening Hymn, by J. D. Burns, 13-4741

Faith, by Ray Palmer, 13-4740

Gentle Jesus, Meek and Mild, by Charles

Wesley, 9-3270

God Moves in a Mysterious Way, by Wm.

Cowper, 3-1141

God of Justice, Our Salvation (Serbian

Hymn), 17-6255

God of Our Fathers, Known of Old, by Rud-

yard Kipling, 19-6872

Have Pity, Lord, by J. G. Saxe, 13-4600

He That Is Down, Needs Fear No Fall, by

John Bunyan, 15-5553

I Think when I Read that Sweet Story of

Old, by Mrs. Luke, 18-6651

Jesus Bids Us Shine, by E. H. Miller, 12-4350

Jesus, Lover of my Soul, by Charles Wesley,

16-5867

Jesus, Tender Shepherd, by M. L. Duncan,

13-4742

Lead, Kindly Light, by John Henry Newman,

12-4435

Lord, It Belongs not to My Care, by Richard

Baxter, 16-5867

Lord of All Being, by O. W. Holmes, 4-1514

Mine Eyes Have Seen the Glory, by Julia

Ward Howe, 17-6251

Now the Day is Over, by Sabine Baring-

Gould, 11-4034

O God, Our Help in Ages Past, by Isaac

Watts, 5-1781

Once in Royal David's City, by Mrs. Alexan-

der, 17-6108

Rock of Ages, by A. M. Toplady, 7-2364

Spacious Firmament on High, by Joseph Ad-

dison, 13-4600

Sun of my Soul, by John Keble, 4-1382

Thy Way, Not Mine, O Lord, by Horatius

Bonar, 13-4599

Twenty-third Psalm (metrical version), by

Joseph Addison, 2-486

See also Christmas—Poetry

Hymns, Authors of, 12-4435-40

Hyperion, father of the Sun, 9-3233

Hypnos, god of sleep, 9-3235

Hypnotism, and suggestion, 12-4443-44

Hypochlorite of soda, kills microbes, 15-5493

Hypodermic Injection. The introduction of medicines beneath the skin with a hypodermic syringe attached to a slender hollow needle. Sometimes preferable to giving by the mouth, especially when a rapid result is desired. Narcotics are most frequently administered thus. Hypodermic means "beneath the skin."

Hyrax, animal, account of, 6-2139-40

Picture, 6-2145



"I Don't Care a Fig," origin of, 16-5960

I spy, game, 3-1029

Iasi, Rumania, *see* Jassy

Ibañez, Vicente Blasco, Spanish author, 19-7130

Picture, portrait, 19-7125

Iberian peninsula, *see* Spain

Iberians. The people of Mediterranean type who are believed to be some of the first immigrants to South Europe from North Africa. It is supposed they settled at the mouth of the Iberus (Ebro) River in eastern Spain. Their descendants are the Basques of the Pyrenees. The Picts of Scotland are also held to be Iberian in origin. *See also* 14-5042

Iberville, Pierre le Moyne d' (1661-1706). A great naval officer of New France. In 1698 he discovered the mouth of the Mississippi and founded the colony of Louisiana.

Ibex, wild goat, 4-1378

Picture, 4-1371

Ibis, bird, 11-4009

Pictures, 11-4004

African wood ibis (in color) 12-4371

scarlet ibis (in color) 12-4372

Ibsen, Henrik, Norwegian dramatist, 19-7012-13

Picture, portrait, 19-7009

GENERAL INDEX

Icarus, son of Dædalus, story of, 9-3354; 12-4197

Ice

- * How we get our ice, 2-529-35
- artificial, 2-531-35
- cutting and distribution of, 2-530
- expansion and contraction, 4-1355
- household ice machines, 2-535

Questions about

- Do we get a pound of ice from a pound of water? 14-5086
- Why do we find ice slippery? 7-2362
- Why does a piece of ice make a drink colder? 13-4827

Pictures

- bringing ice to the city, 2-528
- cutting ice, 2-530
- making artificial ice, 2-531, 532, 535
- making ice for cutting, 2-529

Ice age, *see* Glacial epoch

Ice-hockey, *see* Hockey, Ice

Ice yachting, account of, 10-3698

Picture, 10-3698

Icebergs

- size, 4-1355
- Question about*. Why does an iceberg float? 4-1355
- Picture*, near coast of Newfoundland, 8-2665

Iceberry, description, 15-5386

Iceland

- description, 15-5298
- language is original Scandinavian, 19-7009
- literature, early sagas, 19-7009-10

Iceland-moss, form of lichen, 3-882

Ices, made without freezer, 11-4088

Ich dien. German for "I serve"; the motto of the Prince of Wales, which, surmounted by three ostrich feathers, forms his official crest.

Ichneumon flies, variety of wasps, 17-6232

- life history, with pictures, 18-6725
- Picture*, (in color) facing 18-6721

Ichneumons, *see* Mongooses

Ichthyornis, prehistoric bird, 8-2758

Ichthyosaurus, prehistoric reptile, 1-95; 2-632; 5-1546

- school-girl found skeleton, 5-1546, 1548
- Pictures*, 1-93; 4-1403

ICTINUS, architect of the Parthenon, 12-4222

Idaho. Northwestern state; area, 83,888 square miles; capital and largest city, Boise City. Mining, lumbering and stock-raising are carried out on a large scale. Lead, zinc, gold, silver, copper and other metals are mined. Nickname, "Gem State." State flower, *synedra*. Motto, "Esto perpetua" (May it last forever). "Idaho" comes from the Indian words meaning "Light on the Mountains." First settlement, Pioneer City, 1862.

- described in Western States, 18-6425-36; 19-6841-50
- grows prunes, 6-2064
- irrigation in, 7-2546
- made a state, 11-3944

Pictures

- Arrowrock dam, 7-2552
- Big Salmon River, 18-6431
- flag (in color), 19-7091
- Great Shoshone Falls, 19-6841
- lead-silver mine, 19-6843

Ideas, Association of, 11-4068

Idia fasciata, insect, 17-6423

Iduna, goddess in old Norse mythology, story about, 15-5328-29

Igloo, Eskimo house

- how built, 7-2564
- Question about*. What do arctic explorers mean by an igloo? 7-2485

Igor, Prince, Raid of, Russian epic poem, 19-6907-08

Igorrotes, tribe in Philippines, 10-3588

- Picture*, village, 10-3589

Iguanas, lizards, 14-5222

- Picture*, 14-5233

Iguanodon, prehistoric animal, 1-95; 5-1660

- Picture*, 1-95

Iguazu River, description, 19-6863

Ilíad, * 6-1983-84

- Pictures*, scenes from, 6-1982

Ilium. Greek name for Troy. 6-1983

Illecillewaet Valley, Canada. *Picture*, 1-155

Ililimani. A volcano in the Bolivian Andes southeast of La Paz. It is surmounted by four peaks, of which one, Conder Blanco, is over 20,800 feet high.

Illinois. Known as the Prairie State, a North Central state. It ranks first in the production of corn and cattle, pig- and horse-rearing, while coal is extensively mined. Chicago, the largest city, has an immense meat-packing trade, and manufactures of every sort are carried on. Other towns are Springfield, the capital, Quincy and Peoria. Area, 56,665 square miles. Abbreviation, Ill. Nickname, the "Prairie State." State flower, the wood violet. Motto, "State sovereignty—national union." "Illinois" comes from an Indian word, meaning "the River of Men." First settlement thought to have been at Kaskaskia, 1695.

- described in the North Central States, 15-5273-84; 17-6037-48

history

- explored by Father Marquette, 18-6631-34
- first public building at Cahokia, 19-7112
- France wished Great Britain to hold, 5-1695
- hardships of early settlers, 6-1910
- in Northwest Territory, 6-1908
- made a state, 6-1910; 11-3938
- presidents from, 8-2676
- settlement of Chicago, 19-7106
- in the Corn Belt, 15-5280, 5282, 5284
- manufactures, 19-7118
- origins of population, 15-5273-74

Pictures

- Evanston, 19-7123
- flag (in color), 19-7190
- Lincoln's home at Springfield, 11-3941
- New Salem (restored), 3-1048-49
- Quincy, waterfront, 16-5653
- steel manufacture in, 6-1048-49
- stockyards, Chicago, 9-3208
- University, Woman's Building, 12-4307

See also Chicago, *Pictures*

Illinois, University of

- Picture*, Woman's building, 12-4307

Illinois and Michigan Canal, 13-4787

Illinois River. American river, formed by junction of Kankakee and Des Plaines rivers. Flows into the Mississippi. 435 miles.

Illness

- Question about*. Why are there some illnesses we cannot get twice? 2-461

Illumination of manuscripts, *see* Manuscripts, Illumination of

Illusions, Optical, *see* Optical illusions

Il Penseroso, poem by Milton, account of, 4-1236

- extract from, 1-327

Il Pleut, Bergère, song, account of, 10-3612

Imagination and art, 1-62-63

Imitation of Christ, book by Thomas à Kempis, influence of, 13-4866

Immermann, Karl Leberecht, German author, 17-6409-10

- Picture*, portrait, 17-6410

Immigration

- United States, 9-3218, 3220
- foreign-born, percentage of, 12-4152
- foreign population in North Central states, 15-5274
- foreign population in Northeastern states, 12-4152
- foreign population in Southern states small, 13-4518
- limited by Congress in 1921, 9-3220
- present law, provisions of, 11-3950
- quota, explanation of, 9-3220

Poem about. The Naturalized Alien, by Lurana Sheldon, 15-5650

Immortal three, * 16-5915-20

Immortality

- Egyptian belief in, 3-809-10, 814
- symbols in early Christian painting, 2-578

See also Heaven

Poems about

- At Last, by J. G. Whittier, 7-2637
- Intimations of Immortality, by William Wordsworth, 7-2633-36
- For list, *see* 20-7681

Immunity. In medicine, the resistance to a given disease. This may arise from the presence of substances in the blood unfavorable to the bacteria, or from the absence of nourishment required by the bacteria. It can be promoted by inoculation.

Impeachment. The calling to account for some high offense. In England the House of Commons impeaches and the House of Lords determines. In the United States for federal crimes

GENERAL INDEX

Impeachment (continued)

the House of Representatives impeaches and the Senate determines. In most states the rule is the same.

Imperator, title used by Augustus, 4-1199

Impressionism

in music, Debussy's influence, 19-7152

in painting

influence of French naturalism, 7-2475

method, and influence in French art, 7-2480-82

later developments, post-impressionism,

8-2710-14

Impressment of seamen and War of 1812, 5-1702, 1704

"In a bee-line," meaning of expression, 7-2486

"In God we trust"

Question about. How did the words "In God

we trust" come on a coin? 4-1453

Incandescent lamps, see Electric lamps

Incas. The reigning order in ancient Peru from the 13th to the 16th century. The rule of the Incas was absolute but very mild; the sovereign was the head not only of the state and the army but of the priesthood. The word Inca is often used for the whole Quichua race, which is Indian.

account of, 19-6860-61

conquest by Pizarro, 19-6861-62

Picture, Inca throne at Cuzco, 19-6857

Inchcape Rock

Poem about. Inchcape Rock, by Robert

Southey, 7-2527

Inclined plane. In engineering an inclined track on which trains or boats are raised or lowered from one track to another. In mechanics it is a plane that makes an oblique angle with the line of the horizon.

Incognito. Italian for "unknown"; used in English for privately or under an assumed name. Often written incog.

Income

Increase of, yields diminishing satisfaction,

17-6360

wise and foolish spending of, 17-6361

Income tax

allowed by amendment to U. S. Constitution,

5-1793

Incubator. A device for the artificial hatching of eggs, including an egg-chamber uniformly heated, a self-regulating source of heat, and provision for ventilation of the egg-chamber. There are many different types.

Independence Bell, see Liberty Bell

Independence Day, 4th of July

observance, 6-2092

Picture, scenes in New York City, 6-2095

Independence Hall, Philadelphia

notes and pictures, 18-6830-31

Picture, 18-6825

Index Expurgatorius. Latin for "List of forbidden books"; a list of books forbidden to Roman Catholics first issued by Pope Paul IV in 1557. The list is prepared by the Congregation of the Index, a body of cardinals and their assistants.

India

architecture, see Architecture, Indian

buffaloes, 4-1264

caste system, 8-2700, 2702

cattle, 4-1262

cities, reason for growth, 8-2698

climate, 8-2696, 2698

* description, 8-2695-2701

fabrics, 10-3718

forests, bad effects of cutting, 11-4095

government, 8-2702

East India Company's rule given up,

8-2828

history

* How India became an empire, 8-2821-28

England's power established, 18th century,

6-2100; 8-2826, 2828

English, French and Portuguese trade, begin-

ning of, 8-2824

invasions by Aryans, Persians, Greeks and

Arabs, 8-2821-22

mutiny against England, 7-2299; 8-2828

World War, number of men sent, 7-2300

home life, with picture, 8-2697

irrigation, primitive methods, 7-2543

modern reservoirs to prevent famine, 7-2544

isolation of, 8-2694, 2696

literature, 15-5461

India (continued)

manufactures, 8-2698

hand spinning and weaving, 14-5168

map, 8-2694

native princes, 8-2702

population, 5-1605

ports, 8-2698

pronunciation of names, 8-2698, 2700

rainfall of, 8-2697

religions, 8-2700, 2702; 9-3085-88

sea route from Europe, discovery, 1-89

tea cultivation, 2-762-72

See also Ceylon

* Pictures, 8-2695-2701, 2821-27

bridges, old-fashioned, 1-41

* Indian scenes (gravure), 8-2829-36

irrigation in, 7-2547

natives, types of, 8-2825

oxen as beasts of burden, 4-1261

spinning silk, 15-5317

tea production, 2-761-72

typical huts, 5-1657

India-rubber, see Rubber

Indian bean, name for catalpa, 13-4642

Indian corn, see Corn

Indian cucumber-root, plant, 18-6572

Indian fig or prickly-pear, 9-3268

Pictures, 9-3264-65

Indian Ocean. One of the five great oceans. It lies between Asia, Africa and Australia, and contains Madagascar, Zanzibar, Mauritius, Reunion, Ceylon, Socotra, the Seychelles, the Maldives, and the Cocos islands. Occupying 27,500,000 square miles and draining 5,000,000, it has a maximum depth of 20,340 feet, and an average depth of 12,000 feet.

Indian pink, see Arethusa, orchid

Indian pipe, plant, 18-6572

note on, 18-6569

Picture, 18-6569

Indian poke, plant, 18-6570, 6572

Indian summer. A period of mild weather occurring in October and November with clear sky and hazy atmosphere. The origin of the term is American, but the reason for giving it this name is unknown.

Indian Territory, formation of, 19-7238

Indian turnip, see Jack-in-the-pulpit

Indiana. A state north of the Ohio River; area, 36,345 square miles; capital and largest city, Indianapolis. Agriculture, mining and manufacturing are all important. Abbreviation, Ind. Nickname, "Hoosier State." State flower, tulip-tree. Indiana was named after the Indians. First settlement, Vincennes, about 1705.

described in North Central States, 15-5273-84; 17-6037-48

history

attached to Quebec (1774), 3-941

France wished Great Britain to retain,

5-1695

hardships in the Northwest Territory,

6-1908-10

made a state, 6-1910; 11-3938

in the Corn Belt, 15-5280, 5282, 5284

Indianapolis only large city not on water,

17-6046

literary men, born in state, 13-4823; 14-5010,

5012

only president from state, 8-2676

steel mills at Gary, 17-6038

Pictures

American Legion Building, 17-6045

flag (in color), 19-7190

public library, Indianapolis (gravure),

18-6687

University of Notre Dame, 12-4316

Washington Street, Indianapolis, 17-6045

Indianapolis. Capital of Indiana, a great railway centre, with extensive manufactures of milling machinery, drugs, furniture, woodens and starch. Large oil and coal fields are in its vicinity.

Pictures, 17-6045

American Legion Building, 17-6045

public library (gravure), 18-6687

Washington Street, 17-6045

Indians

agriculture, 1-161

modern farms, 19-7242

notes and pictures, 19-7239

art of, 1-196

handicrafts, with pictures, 19-7241

GENERAL INDEX

Indians (continued)

Canadian
and Canadian government, 16-5831-32
Lacombe's mission to, 15-5375-77
citizens' rights in U. S.
Dawes Act and Burke Bill, 19-7236
voting rights conferred, 1924, 19-7235
clothing
directions for making, 9-3251-52
materials used, 9-3252
* customs of North American tribes, 1-160-62
family life, 1-162-63
demand for, as workers, 19-7242
dolls, how to make from straw, 18-6645
dwellings of, 5-1658
education, 19-7238-42
food
bark, 12-4515
ground-nuts and wild plums, 14-5165
tamarack bark, 12-4378
government, nature of, 1-162
hair-dressing, Hopi Indians, 9-3029
handicrafts, *see* Indians—art of
history, 1-160-65; 19-7235-44
hunters and trappers, expert, 12-4341-42
* Last of the Mohicans, by J. Fenimore Cooper, 1-267-78
legends, 17-6199-6205
about sun, moon and stars, 6-1970
medical care, by U. S. government, 19-7242, 7244
missionaries to Indians
Black Robe and White Heart, story, 15-5375
California missions, 18-6826
John Eliot, 18-6634
French, 3-778
Jesuits in South America, 19-6862
Marquette, 18-6631-34
named by Columbus, 9-3190
number in Canada and U. S., 1-165
number in U. S., 19-7235
number in U. S. in 1923, 19-7244
* of the United States, 19-7235-44
of Arizona desert, 9-3028, 3030
reservations in U. S., forming of, 19-7235-38
of South America, 19-6858
origin in America, theories of, 1-160
physical characteristics, 1-160
picture writing, 10-3545-46
pipe of peace, 18-6553
positions reached in present day, 19-7242
relations with white men,
Cartier and Indians, in Canada, 1534, 2-678
enslavement of, South America, 19-6862
French and English compared, 3-777-78
with U. S. government, 19-7235-44
religion, 1-162; 19-7244
signals for communication, 5-1768
statues of, 14-4939
treachery in trading, 12-4342
treaty, 1820, about new homes, 19-7238
tribes and racial groups, Canada and U. S., 1-165
United States Bureau of Indian Affairs, 19-7236, 7238
* Wacousta, by John Richardson, 9-3141-49
See also Five Nations; Iroquois Indians; Six Nations
Poems about
The Arctic Indian's Faith, by T. D. McGee, 10-3481
An Indian at the Burial-place of his Fathers, by W. C. Bryant, 18-6650
Song of Hiawatha, by Longfellow: extract, 19-6985-86
Pictures, 1-164; 19-7235-44
chieftains (in color) facing 19-7235
fight with white settlers, 6-1921
medicine dance of Winnebago Indians, 6-1915
of South America, 19-6859
on Peegan Reserve, Canada, 16-5835
Pueblo and Hopi Indians, 9-3029
Roanoke Indians 300 years ago, 17-6334-36
scenes in government schools, 19-7243
showing life of, 17-6201
Indictment. In law, a written statement charging one or more persons with an offense, presented on oath by a grand jury.
Indigestion. causes nightmares, 9-3099
Indigo bunting, bird, 14-5024
Indigo plant, produces dye, 9-3163

Indo-Europeans, *see* Aryans
Induction coils, explanation, 16-5802
Indus River, 8-2696
Inertia, law of, 13-4668
Infection, explanation of, 8-2872
Infectious diseases
white blood cells aid recovery, 3-936
Inferno, Dante's idea of, and excerpt, 17-6151
Ingelow, Jean, poetry of, 12-4232
See also Poetry Index for poems and notes
Inglesfield, Sir Edward Augustus, arctic explorer, 13-4708
Picture, portrait, 13-4707
Ingres, Jean, French painter, 6-2080
Pictures
Portrait of the artist, 9-3071
Portrait of M. Bertin, 6-2079
World's Poets pay Homage to Homer, 16-5749
Inheritance tax. A charge on the succession of property from a deceased person to his heirs. in Canada and the United States, 13-4555-56
Initiative and referendum. Initiative is a political device originating in Switzerland, and since 1902 gaining foothold in the United States, which aims to secure for the voters more direct participation in legislation. In some states a measure supported by the petition of a certain proportion of voters must be acted upon by the legislature; in others, the measure must be placed upon the official ballot to be voted upon by the people themselves. The referendum has been long used in the United States. Legislatures have submitted many important bills to the vote of the people, and in some states any act of the legislature must be so submitted on petition of a given proportion of the voters.
Injunction. A writ whereby a person is required to do, or refrain from doing, certain acts. The first kind is the mandatory writ, the second the preventive.
Ink
invented by Egyptians, 10-3550
invisible, how to make, 2-626
made from sloe juice, 12-4383-84
printing ink, 9-3390
spots, how to remove, 15-5335
Questions about
How does rubber rub out ink? 5-1809
Why does blotting-paper absorb ink? 10-3578
Why does ink stain while water does not? 6-2252
Ink-berry, shrub
belongs to holly family, 13-4783
Inkerman. A ruined town in the Crimea, Russia, near Sebastopol. Here on Nov. 5, 1854, the English and French defeated the Russians, who had made an unexpected attack on the English camp. The battle was severe and losses on both sides were great.
Inman, Henry, American painter, 9-3330
Inness, George, American painter, 10-3447-48
Pictures (gravure)
Coast-scene, 10-3463
Peace and Plenty, 10-3463
Wood-gatherers, 10-3463
Innocent III, Pope
power over England, 8-2848, 2850
Innocent X, Pope
Picture, portrait by Velasquez (gravure) 4-1504
Innsbruck, in the Tyrol, 17-6192
Picture, 17-6198
Inoculation. The introducing of bacteria into an individual in order to induce a mild form of the disease, which, by setting up the right blood condition, will prevent future attacks. Formerly limited to smallpox, but now extended to many diseases. During the World War soldiers were inoculated against typhoid fever and cholera.
Inquisition
and St. Dominic, 13-4864
Spanish, 14-5044
Insanity
and Philippe Pinel, 8-2728
history of treatment, 8-2728
Insecticides, various kinds, 18-6733
Insectivora, insect-eating animals, 1-318-19
Insects
* Insect friends and foes, 18-6721-34
* The mighty insect, 17-6063-78
and fertilization of flowers, 17-6064, 6073-76
adaptation to flowers, 5-1609

GENERAL INDEX

Insects—and fertilization of flowers (*continued*)
 fertilization of orchids, 13-4876
 pollen of flowers carried by insects, 3-1014
 as causes of disease, 15-5488
 breathing apparatus, 17-6064, 6066
 changes during growth, 17-6066
 early forms in Carboniferous period, 4-1296
 injurious
 aided by weeds, 9-3391-92
 destroyed by birds, 8-2762
 destruction of crops, 17-6078
 how introduced into U. S., 18-6734
 increase of, because of man, 18-6732
 war against, 18-6733
 plants that catch insects, 1-330-32; 2-746
 sundew, 2-742
 trumpet plant, 19-7092
 powers of multiplication, 17-6063-64
 relation to commerce, 17-6064
 resembling sticks and leaves, 17-6070
 senses of, 18-6531
 eyes, 11-4134
 hearing sense lacking in most, 11-3978
 in beetles, 18-6624
See also names of insects: as, Beetles; Flies;
 Mosquitoes; Butterflies; Moths
 For list of main articles, see 20-7606-07
Poem about, Butterfly's Ball, by William Ros-
 coe, 3-1008
Pictures, 17-6063-77
 (in color), facing 18-6720-21
 parts of, magnified, 13-4672-78
 visiting flowers (in color), 17-6073-76
Inside the wonderful ball, * 2-385-89
Inspiration, in breathing, 4-1329-30
Instinct
 how differs from intelligence, 12-4281
 in animals, 14-5220-21
 in butterflies, 18-6527
 in dogs, 4-1231
 motive for our actions, 1-310
 of hunger, in man, 5-1808
 relation to emotions, 12-4441-43
Instruments, Musical, *see* Musical Instruments
Insulators on telegraph poles, 16-5962
Insulin, and diabetes, 9-3224
 discovery of, 15-5493
Integer Vite, song, note on, 10-3611
Interdict, an order of the Pope, explanation,
 5-1570
Interest, on money, explanation, economic,
 17-6093
Question about, When will money have dou-
 bled itself at compound interest?
 18-6550, 6552
Interior, Department of, *see* United States—In-
 terior, Department of
Interior Continental Plain, Canada, 1-112
Interlaken, Switzerland, note and picture,
 16-6007
Internal-combustion engines, *see* Gas and oil
 engines
Internal revenue. In the broadest sense, the
 revenue derived by a government from taxes
 other than those on imports. In a narrower
 sense, items of revenue from stamps, legacies,
 spirits, tobacco, etc.
International law. The body of rules which
 civilized nations regard in their dealings with
 each other. They are based mainly in the prac-
 tice of Great Britain and the United States on
 the customs, treaties, statutes and judicial de-
 cisions of civilized nations.
International League, in baseball, 17-6141
Interstate Bridge over Columbia River, note
 and picture, 1-26
Interstate Commerce Act. An act passed by
 Congress in 1887 which attempted to regulate
 commerce between the states when carried on
 wholly or partly by rail. It made all public
 carriers liable to regulation, declared that all
 charges must be reasonable, forbade special
 rates, and established the Interstate Commerce
 Commission to enforce the provisions of the
 act.
Interstate Commerce Commission, establish-
 ment, 11-3943
Intestine, *see* Bowel
Inventions
 aid production of wealth, 15-5357-58
 need of capital to develop, 15-5359-60
 relation to savings, or capital, 17-6362
 relation to wages, 19-7214

Inventions (*continued*)
 stimulated by division of labor, 14-5245
 value, in lessening labor, 19-7201
See also Inventors; *also* names of machines
 and of individual inventors
Inventors, 19-7201-14
Inventory. A detailed list of articles contained
 in a private house, as furniture, books, and so
 on; also of goods in shops or warehouses. The
 word comes from the Latin *inventire*, to find out.
Invertebrates, definition, 5-1559
 eyes of, 10-3684
Invisible ink, how to make, 2-626
Iodine, how to remove stains of, 2-618
Ion, explanation, 16-5672
Iona, island
 St. Columba built monastery, 8-2844
 Picture, St. Martin's cross and ruins, 4-1437
Ionian Islands. Group of Greek islands, of
 which Corfu, Zante, Cephalonia and Leucadia
 are the chief, in the Ionian Sea.
Ionian Sea. Part of the Mediterranean lying
 between Italy and Greece.
Ionians, ancient Greek people
 civilization, colonies and cities, 3-1072, 1074
 descendants of, Aegeans, 11-3988
 descended from Ion, 3-1070
Ionic Order, in architecture, 15-5342-44
Iowa. Prairie state; area, 56,147 square miles;
 capital and largest city, Des Moines. Agricul-
 ture, live stock and coal-mining are the chief
 industries. Food products are the chief manu-
 factures. Nickname, "Hawkeye State." State
 flower, wild rose. Motto, "Our liberties we
 prize and our rights we maintain." "Iowa"
 comes from the name of a Sioux tribe and
 means "Sleepy ones." First settlement, Du-
 buque, about 1833.
 described in North Central States, 15-5273-84;
 17-6037-48
 in Corn Belt, 15-5280, 5282, 5284
 included in Louisiana Purchase, 5-1702-03
 land along the Mississippi, 16-5654
 leads in number of hogs, 9-3207
 made a state, 6-1922; 11-3940
 water power, 15-5430
Pictures
 catching fish to save their lives, 11-4059
 cornfields, 7-2414; 15-5279
 flag (in color), 19-7190
 Keokuk dam, 16-5656
 University, 12-4315
Iowa, University of, *Picture*, 12-4315
Ipecac, medicine
 plant that yields it, 8-2910
Ipecacuanha, medicinal plant, 8-2910
Picture (in color), 8-2998
Iphigenia, sacrifice of, 11-3808-10
Ipswich, Mass.
Picture, Hart house, built 1640, 2-547
Irak, *see* Iraq
Iran, *see* Persia
Iraq, Arab kingdom, 13-4804
 establishment by British, 18-6669
Ireland. Island west of Great Britain; area,
 32,600 square miles; capitals, Dublin and Bel-
 fast. Consisting of the provinces of Ulster,
 Leinster, Munster and Connaught, it is divided
 politically into Northern Ireland and the Irish
 Free State: Northern Ireland forms part of the
 United Kingdom, while the Irish Free State is
 a self-governing dominion of the British Em-
 pire. The people are nearly all Celts, and
 mainly Roman Catholics; but in the six counties
 of Ulster which make up Northern Ireland Prot-
 estants predominate. The centre of Ireland is
 generally flat, and contains the Bog of Allen
 and many lakes; but the coast is fringed with
 mountains, the highest of which are MacGilli-
 cuddy's Reeks, in Kerry. The Shannon (220
 miles) is the longest river in the British Isles,
 and Lough Neagh (150 square miles) the largest
 lake. Agriculture, dairying and stock-raising
 are the staple industries, but Northern Ireland
 has also linen, woolen and shipbuilding trades.
 Cork, Londonderry and Limerick are ports.
 art, old handiwork, notes and pictures,
 8-2941
 illuminated manuscripts, 2-582; 6-1999
 church in, *see* Ireland—religion
 education, early church schools, 8-2930
 emblem, the shamrock, 17-6180
 famine of 1847, 8-2936

GENERAL INDEX

Ireland (continued)

- Giant's Causeway, formation, 2-526
- government
 - Home rule bill, 1914, 8-2938
 - in early days, 8-2929
 - See also Ireland—Parliament
- harp, use of, 5-1796
- * history, 8-2929-42
- history (arranged chronologically)
 - early kingdoms, 8-2929
 - Northmen, invasion of, 8-2930, 2932
 - given to king of England by Adrian IV, 8-2848
 - English rule established, 5-1568; 8-2932
 - under Henry VIII, 5-1817; 8-2934
 - rebellion crushed by Sir Walter Raleigh, 14-4966
 - Cromwell's severity in Irish rebellion, 6-1978; 8-2934
 - war between James II and William III, 8-2934-35
 - union with England, 8-2936
 - Sinn Féin uprising, 1916, 8-2938, 2940
 - Free State formed in southern Ireland, 7-2300; 8-2940
- in literature
 - Maria Edgeworth's stories, 6-2257
- industries
 - cattle and woolen industries formerly repressed, 8-2936
 - linen-weaving, history of, 9-3317
- land
 - held in common in early times, 8-2929
 - land question, 8-2929, 2936, 2938
- laws
 - Brehon laws, 8-2929, 2932, 2934
 - caused trouble with England, 8-2935-36
- Parliament, 8-2935-36
- in Ulster, 1921, 8-2940
- of Sinn Féin, 1921, 8-2940
- union with English Parliament, 8-2936
- population reduced one-half in 19th century, 8-2936
- potato famine, 1846, 7-2618
- religion
 - before Christianity, 8-2929
 - church and missionaries, early times, 4-1434
 - early church, 8-2930
- Poems about
 - Bells of Shandon, by Mahony, 14-5238
 - Brian O'Lin Had No Breeches to Wear, 3-1143
 - The Irish Harper, by Campbell, 10-3741
 - Kathleen Mavourneen, by L. M. Crawford, 1-326
 - The Minstrel Boy, by Moore, 2-484
 - She is Far from the Land, by Moore, 11-4115
 - Wearin' o' the Green, 17-6256
- * songs, Irish, and their writers, 10-3610-11
- * Pictures, 8-2929-42
 - Ballycastle, marine pot-hole, 6-2075
 - bridge, old-fashioned, 1-41
 - linen industry, 9-3320-23
 - St. Columba carries Christianity to Britain, 8-2842
 - Sneem bridge, Kerry (grave), 7-2304
- Ireton, Henry, life, 11-3852
- Picture, portrait, 11-3845
- Iris, in Greek mythology, messenger of the goddesses, 9-3228
- Iris, part of eye, 10-3684-85
- contraction and relaxation, 14-5218
- Iris, plant, description of, 18-6568
- emblem of France, see Fleur-de-lis
- produces orris root, 8-2911
- swamp iris, note on, 16-5733
- Picture
 - swamp iris, 16-5733
- Picture (grave), 19-7175
- Pictures (in color)
 - fetid iris, 14-4991
 - fetid iris, fruit of, 11-4022
 - yellow iris, flower, 16-5884
- Iris Family of plants, 19-7172
- Irish Free State, formation of, 7-2300; 8-2940
- Irkutsk. Largest East Siberian city, trading in tea and furs. It has a fine cathedral.
- Iron
 - * Making iron and steel, 6-1935-54
 - and sound transmission, 17-6314
 - dependence on coal, 3-790, 792
 - history of early use, 6-1935-36

Iron (continued)

- how obtained by Greeks and Romans, 6-1935-36
- in plants and animals, 3-804-05
- production in U. S., 6-1936, 1938; 9-3208
- first production in 1624, 6-1936
- removal, in pottery-making, 2-689
- Questions about
 - Does a piece of iron get tired? 10-3729
 - Is iron heavier when it rusts? 10-3578
 - Why does iron bend when it is hot? 1-313
 - Why does iron feel colder than wood? 4-1451
 - Why does iron float on mercury and not on water? 16-5845
 - Why does not iron burn in the fire? 4-1356
 - Why is iron-roofing usually corrugated? 6-2124
- Pictures
 - loading ore on steamer, 6-1937
 - modern ironworks, 6-1935
 - open-pit mine, Minnesota, 17-6039
- * showing transportation, smelting and manufacture into steel, 6-1940-54
- steam shovel getting ore, 6-1934
- Iron Gates. Narrow gorge where the Danube cuts its way between the Balkan Mountains and the Transylvanian Alps, on the border of Serbia and Rumania. Here a series of rapids stretching for two miles formerly prevented navigation, but between 1890 and 1900 a passage was made for river steamers by blasting.
- Iron rust
 - composition of, 4-1356
 - preventing on nails and screws, 11-4079-80
 - reason it weakens iron, 10-3578
 - removing and preventing on tools, 2-628
 - removing stains of, 2-618
- Ironsides, name for Cromwell's soldiers, 6-1976
- training and character, 11-3846
- Ironsides, name for ship Constitution, 17-6330
- Ironwood, tree, 13-4640
- Iroquoians. One of the most important linguistic stocks of North American Indians. They have been called the Romans of the New World on account of their proud bearing, warlike spirit and sound political organization. Some of the Iroquoian stock tribes became the historical Six Nations, comprising Mohawks, Oneidas, Cayugas, Senecas, Onondagos and Tuscaroras. Other important tribes were the Wyandots, Nottoways, Cherokees, Eries and the Neutral Nation. and French, cause of struggle, 2-680
- Picture, museum group, with note, 18-6622
- See also Six Nations
- Iroquois, Lake, prehistoric lake, 1-108
- Iroquois Falls, Ontario
 - mill of the Abitibi Power and Paper Company, 7-2452
- Irradiation of light, 6-2122
- Irrawaddy. One of the great rivers of Asia, chiefly in Burma. It forms the most important Burmese waterway, with an immense rice trade, and passes Bhamo, Mandalay, Prome and Bassein before falling into the Bay of Bengal below Rangoon. 1,500 miles.
- Irrigation
 - * Making the desert blossom, 7-2543-55
 - in Egypt, ancient, 3-808
 - in Inca empire, 19-6861
 - in Italy, 13-4572
 - in Sahara desert, 7-2421
 - in United States, history and recent development, 7-2544, 2546
 - primitive methods, 7-2543, 2547
 - Africa and Asia, 7-2543-44
- * Pictures, 7-2543-55
- desert and irrigated land, western U. S., 8-2671
- primitive water wheel, 14-4929
- terraced rice fields of the Philippines, 5-1853
- Irritants
 - Question about. Why does mustard burn our tongue? 8-3013-14
- Irving, Minna, see Poetry Index for poem and note
- Irving, Washington, American author
 - * life and writings, 13-4625-26
 - Rip Van Winkle, extracts, 12-4481-85; 13-4559
 - Picture, memorial building at Seville, 13-4627
- Isabella, surnamed the Catholic. Castilian queen, patron of Columbus; born, Madrigal, 1451; died, Medina del Campo, 1504.
- married Ferdinand of Aragon, 14-5044
- Picture, promises aid to Columbus, 1-88

GENERAL INDEX

Ischia. Beautiful Italian island at the entrance to the Bay of Naples.

Isfahan, or Ispahan. Persian city famous as a caravan centre. It trades in tobacco, fruit and cotton, and makes pottery and carpets.

description, 3-910

founded, 3-918

Pictures

bridge, 3-911

grand mosque, 3-919

Isinglass. A pure form of gelatin, whitish in color and semi-transparent; prepared chiefly from the swimming bladders of sturgeons from the rivers of western Russia. Elsewhere, as in Canada, Brazil and the West Indies, it is made from cod, hake and other fish. Used in making jellies, cement, court plasters, etc.

Isis, a goddess of ancient Egypt

legend of, 3-810, 812

Isis River, Oxford. *Picture*, 7-2540

Islam, see Mohammedanism

Islands. Areas of the 15 largest islands:

	square miles
Australia	2,974,581
Greenland	827,000
New Guinea	313,000
Borneo	286,161
Baffin Land	236,000
Madagascar	224,721
Sumatra	161,612
Great Britain	89,041
Honshiu (Japan)	87,426
Celebes	72,679
South Island (N.Z.) .	58,120
Java	50,745
Cuba	44,164
North Island (N.Z.) .	44,130

coral, how formed, 19-7068-69

in South Seas, how formed, 9-3296

Isle de France, former name of Mauritius, 9-3182

Ismail, shah of Persia, subdued Mongols, 3-918

Ismail, Rumania, 14-4922

Isobars. Lines passing through places where the atmospheric pressure, reduced to sea-level, is the same.

Isodorus of Miletus, architect, 16-5717

Isolt and Tristram, story of, 7-2460-61

Isotherms. Lines passing through places having the same temperature over the same period of time.

Ispahan, Persia, see Isfahan

Israel, kingdom, conquered by Assyria, 19-7156

Israelites, see Jews

Israelis, Josef, Dutch painter, 8-2853

Pictures

Children of the Sea (gravure), 8-2864

Helping Mother, 8-2851

The Needlewoman (gravure), 8-2864

Issus. In ancient geography, a town in Cilicia, Asia Minor, near the head of the Gulf of Issus. Three notable battles were fought here: Alexander the Great defeated Darius, 33 B.C.; Septimius Severus defeated his rival Pescennius Niger, 194 A.D.; and Heraclius defeated the Persians under Khusrau, 622.

Isthmus. A narrow neck of land connecting two larger portions, as the Isthmus of Panama connecting North and South America.

Italia irredenta, explanation, 18-6458

Italian architecture, see Architecture, Italian

Italian language, characteristics, 13-4574

musical quality, 10-3560-61

Italian literature

* account of, 17-6149-54

influence of, 13-4574

Italian painting, see Painting, Italian

Italian sculpture, see Sculpture, Italian

Italic type, first used by Manuzio, 9-3388

Italy

agriculture, 13-4570

and Jugo-Slavia, 17-6348

architecture, see Architecture, Italian

art

handicrafts, 13-4572, 4574

See also Architecture, Italian; Painting, Italian; Sculpture, Italian

artistic leadership when disunited, 12-4410

cities, 13-4566, 4576

climate, 13-4570

coal supply, 13-4572

colonies in Africa, 18-6811

Italy (continued)

commerce, 13-4576

* description, 13-4565-76

emigration, 13-4570, 4572

Fascism, 13-4568

geographical position, 13-4565

harbors, 13-4568

history

* fall of Rome to present, 12-4407-12

Holy Roman Empire, 11-3962

19th century, 13-4588, 4590

union established in 1871, 12-4410-12

industries, 13-4572

irrigation, 7-2544; 13-4572

language, 13-4574

literature, see Italian literature

map, 13-4569

mountains, 13-4568

painting, see Painting, Italian

population, 5-1606

population, non-Italian, 13-4576

ports, 13-4576

productions, 13-4570

races, 13-4576

railroads, 13-4568, 4572

religion, 13-4576

rivers, 13-4568

sculpture, see Sculpture, Italian

song, patriotic, Garibaldi's Hymn, 17-6252

territorial changes since World War, 13-4565-

66; 13-6458, 6462

trees, 13-4570

water power, 13-4572

For list of main articles, see 20-7594-95

Question about. Why is the sky in Italy so

blue? 17-6179

* *Pictures.* 12-4409-13; 13-4567-75

Italy's immortals, * 13-4603-16

Itasca, Lake, 16-5653

It's a Long Way to Tipperary, song, 10-3608

Iturbide, Augustin de, Mexican revolutionist,

afterward emperor, 19-7136

Ivan III, Grand Duke of Moscow, 16-5691

Ivan IV, "the Terrible," tsar of Russia,

16-5691-92

Picture, church refuses blessing to him,

16-5693

Ives, Frederic Eugene, and printing pictures in

color, 9-3390

Ivory. Strictly speaking ivory is the material obtained from the tusks of the elephant, which are modified teeth. The name is also given to the inferior material obtained from the teeth of the walrus, hippopotamus, narwhal, sperm-whale and even the wild boar. Considerable ivory is obtained from the tusks of mammoths found in Siberia and elsewhere. (Ser 6-2146.) The chief uses are for billiard balls, knife-handles, piano-keys, toilet articles and ornaments. The nuts from certain species of palm furnish "vegetable ivory," and many substitutes having some of the qualities of the genuine are manufactured.

camel bones as substitute, 5-1596

obtained from the walrus, 3-1000

Picture, cutting up for knife-handles, 4-1307

Ivory-bill, bird, account of, 14-5022

Ivory Coast. French West African colony.

area, 121,590 square miles; chief town, Abidjan.

Rubber, palm-oil, cocoa, mahogany, skins and

nuts are exported.

Ivory-palm, see Palms

Ivy

Poem about. Ivy Green, by Dickens, 10-3741

Picture, common European, fruit of (in color)

11-4026

Iwakuni Bridge, Japan, note and picture, 1-41



Jabirus, variety of stork, 11-4008

Picture, 11-4004

Jacamars, birds, 9-3365

Jacanas, birds, account of, 11-4012

Picture (in color) 10-3624

Jack and the Bean-stalk, story, 10-3597-99

Jack Frost, see Frost

Jack fruit

Picture (in color), 8-3000

GENERAL INDEX

- Jack-in-the-pulpit**, plant
description, 17-6278
fruit of, 11-4020
Picture, fruit of (in color), 11-4025
- Jack Tar**
Question about. Who is Jack Tar? 7-2486
- Jack the Giant-killer**, story, 18-6793-94
- Jackals**, animals, 2-600
Pictures, 2-601, 603
- Jackdaws**, birds, 8-2891
Picture (in color), 8-2900
- Jackson, Andrew**, president of U. S.
* life, 3-1043-45
life, outline of, 11-3951-52
administration, 6-1916; 11-3939
contest for presidency, 1824, 10-3490
defeated Creek Indians, 5-1705
in battle of New Orleans, 5-1706-07
Pictures
portrait, 3-1039
portrait (graveure), 11-3946
Hermitage, his home, 11-3941
- Jackson, A. Y.**, Canadian painter, 10-3703
Picture, Winter, Georgian Bay (graveure), 10-3707
- Jackson, Charles T.**, and anæsthetics, 8-2729
- Jackson, Frederick George**, arctic explorer, 13-4714
meeting with Nansen in Arctic, 13-4718
Picture, portrait, 13-4707
- Jackson, Mrs. Helen Hunt**, American author
life and writings, 13-4819-20
- * **Ramona**, summary and quotations, 1-133-40
See also Poetry Index, for poems and notes
- Jackson, Hughlings**, discovered law of "brain levels," 8-2683
- Jackson, Thomas Jonathan** ("Stonewall"). An American soldier, born in what is now West Virginia. He graduated at West Point, served in Mexican War, but resigned in 1852 to teach in the Virginia Military Institute. He entered the Confederate army and soon won a great reputation; fatally wounded at Chancellorsville.
at Bull Run, 7-2433
death of, 7-2436
kept Union forces from Richmond, 7-2434
Picture, portrait with note, 7-2431
- Jackson**. Capital of the state of Mississippi, situated on the Pearl River, 181 miles north of New Orleans. Its manufactures include cottonseed products, lumber products and machinery.
Picture, Capitol, 14-4898
- Jacksonville, Fla.**, note and picture, 13-4527
- Jacob and Rachel**, game, 3-903
- Jacobi, Otto**, Canadian painter, 10-3700
- Jacobins**, party in French Revolution, 6-2134
- Jacobite rebellion**, English history, 6-2098; 15-5640-43
- Jacquard, Joseph Marie**, inventor of loom for lace, 19-7204-05
Picture, portrait, 19-7201
- Jacquard loom**
invention of, 19-7204-05
notes and pictures, 14-5176; 15-5320
Picture, 9-3322
- Jade, Precious**
Picture (in color), facing 19-7225
- Jadeite**, Mexican stone incorrectly called emerald, 19-7228
- Jadwiga**, queen of Poland, 13-4680
- Jaeger**, gull, 11-4124
Picture, 11-4123
- Jagiello**, Lithuanian prince, 13-4680
- Jagos goldsinny**, *see* Goldsinny, jagos
- Jaguars**, 2-501
Pictures, (graveure), 2-498-99
- Jainism**, form of religion, 9-3088
architecture, 15-5470-71
Pictures, temples (graveure), 9-3095-96
- Jalap**, medicinal plant, 8-2910
Picture (in color), 8-2999
- Jamaica**, West Indies
account of, 9-3191; 19-7102
government, 19-7104
taken by English in 1655, 19-7099
Pictures
natives and hut, 9-3187
sugar-cane plantation, 10-3417
- James I**, king of England
reign in England, 6-1973-74
and Ireland, 8-2934
and Sir Walter Raleigh, 14-4968-70
and Virginia Company, 2-543-44, 555
- James I** (*continued*)
influence on Charles I, his son, 11-3845
son of Mary Queen of Scots, 12-4214
Picture, portrait, with parents, 15-5618
- James II**, king of England
reign of, 6-1981
and rising in Ireland, 8-2934
helped by Louis XIV, 10-3436
last years of, 15-5639
turned over Delaware to William Penn, 2-553
- James I**, king of Scotland, 12-4212
Kate Barlass' devotion to, 13-4579
prisoner in England, in youth, 5-1684
- James II**, king of Scotland, 12-4212
- James III**, king of Scotland, 12-4212
Picture, presented to the nobles, 12-4209
- James IV**, king of Scotland, 12-4212
married daughter of Henry VII, 5-1814
- James V**, king of Scotland, 5-1818; 12-4212, 4214
- James VI**, king of Scotland
became James I, king of England, 6-1973
- James, Henry**, novelist, 14-5009
Picture, portrait, 14-5009
- James, Thomas**. Hargreaves' partner in the spinning-jenny invention, 19-7202
- James the Great, St.** Apostle who is said to have preached the Gospel in Spain, afterward being martyred at Jerusalem by Herod Agrippa. He is the only apostle whose death is recorded in the Scriptures.
- James River**. American river, formed by Jackson's and Cow-pasture rivers, Virginia. Flows into Chesapeake Bay. 450 miles.
- Jamestown, Va.**
first iron furnaces, 1624, 6-1936
first legislature, 1619, 2-546
glassworkers settled in, 18-6746
settlement of, 2-544
Picture, first church, 2-542
- Jami**, Persian poet, 15-5463
- Janissaries, or Janizaries**, Turkish troops, 13-4798
- Janssen, Johann and Zacharius**, and compound microscope and telescope, 13-4671
- January**. The first month of the year, consisting of 31 days. The name comes from Janus, an important Roman god.
in mythology, 9-3235
- Japan**
architecture, *see* Architecture, Japanese
cities, 2-570, 572
climate, 2-562
costumes, 2-572
customs, 2-572, 574
notes, with pictures, 2-565
* description, 2-561-74
scenery, 2-566, 568
dwarf trees grown, 9-3118
earthquakes, 2-568, 570
* history, 2-561-74
houses and dwellings, 5-1658
industries, 2-572
notes and pictures, 2-571
literature, 15-5460-61
maps, 2-563
musical instruments, with pictures, 19-6901
national anthem, 17-6254
pirates, early voyages, 2-564
population, 5-1605
races, 2-562
religion, 2-562
Christianity, in 16th century, 2-564
war with Russia, 16-5696
Western influence causes changes, 2-564, 566
* *Pictures*, 2-560-73
bridges, old-fashioned, 1-26, 41
Fujiyama, volcano, 2-560; 7-2317
house, 5-1657
irrigation in, 7-2547
silkworm industry, 15-5314, 5316
tea industry, 2-764
weaving silk, 15-5318-19
- Japan Sea**. Part of the Pacific lying between Siberia, Korea and Japan.
- Japanese architecture**, *see* Architecture, Japanese
- Japanese beetle**, account of, 18-6734
- Japanese book**, how made, 3-1156
- Japanese Current, or Kuro-Siwo**. The Black Stream (because of the deep blue of its waters), part of the equatorial current of the Pacific. Flows past eastern Formosa, thence north past

GENERAL INDEX

Japanese Current (*continued*)

Japan, where it merges into the easterly drift of the North Pacific.

Japanese earthquake disaster, 1923, 2-568, 570
Pictures, 2-573

Japanese language, 15-5460-61
no alphabet, 10-3548

Japanese literature, 15-5460-61

Japetus, moon of Saturn, 10-3411

Jarraah, or Austrian mahogany, tree, 12-4249

Jasmine. A genus of plants, chiefly native of warm Asia, belonging to the family *Oleaceæ*, noted for their perfume. Common jasmine (*Jasminum officinale*) does not easily survive hard winters. From its flowers oil of jasmine is made. Cape jasmine belongs to the *Gardenias*, is tropical and subtropical in distribution.

Jason, in Euripides' tragedy, *Medea*, 16-5753
building of Argo, 11-3912

search for Golden Fleece, 3-1100-01

Jasper National Park, Canada

Picture, 7-2419

Jassy, Rumania, 14-4922

Picture, Church of the Three Saints, 14-4931

Java, account of, 15-5568

Pictures, 15-5567

rice field, 5-1857

rice fields, irrigation of, 7-2555

Java, ship, beaten by Constitution, 5-1704

Jay, John (1745-1829). An eminent American lawyer and statesman; first Chief Justice of the U. S. Supreme Court.

arranged treaty with England, 5-1702

Picture, portrait in group, 2-390

Jays, birds

account of, 8-2892

blue jays, 13-4830

of North America, 13-4830

in southern U. S., 14-5023

in western North America, 14-5136

Pictures, 8-2895

blue jay, 13-4833

blue jay (in color), 12-4370; 13-4841

California jay (in color) facing 14-5140

European (in color), 9-3131

nest, 13-4765

Stellar's jay (in color) facing 14-5133

Jay's Treaty. Negotiated in 1794 by John Jay of the United States and Lord Grenville of Great Britain; an attempt to settle some of the unfilled provisions of the Peace of Paris. Terms were published prematurely in the press and an outbreak of popular wrath against Jay and Washington followed.

Jazz, possible use in future music, 19-7153

Jeanne d'Arc, *see* Joan of Arc

Jeannette, ship, in arctic exploration, 13-4714

Jebel Shammar, Arabia, 18-6676

Jefferson, Thomas, president of U. S.

* life, 3-1042-43

life, outline of, 11-3951

administration of, 5-1702-03; 11-3938

and early political parties, 5-1702

invented improved plow, 19-7211

Pictures

portraits, 3-1039; 5-1694

portrait, in group, 4-1167; 5-1699

portrait (graveure), 11-3946

home, Monticello, with note, 18-6839

Jefferson City. Capital of Missouri, built at an elevation of 600 feet, on the Missouri River, and the centre of a fertile agricultural and rich mineral region where coal and zinc are abundant.

Jefferys, C. W., Canadian painter, 10-3702

Picture, Western Sunlight (graveure), 10-3706

Jeffries, Richard, author, 11-3999-4000

Jehan Gir, Indian ruler, 8-2824

Jehu, king of Israel, tribute to Assyria, 2-655

Jel-ad-eddin Mohammed, *see* Akbar

Jellicoe, John Rushworth, Viscount of Scapa. English admiral of the fleet; born in 1859. With Lord Fisher and Sir Percy Scott aided development of naval gunnery. During his period of command was fought the battle of Jutland, 1916. In 1917 Jellicoe was succeeded by Sir David Beatty and returned to the Admiralty as First Sea Lord until the end of 1917. After peace was made he visited the Dominions in a semi-official capacity, and in 1920 became governor-general of New Zealand.

Jelly, how to make, 1-130

Jellyfishes, 19-7060, 7065-66

Pictures, 19-7067

Jen-Tsung, Mongol ruler of China, 2-432

Jena. German town in Thuringia, famous for its university and manufacture of optical instruments. Here in 1806 Napoleon defeated the Prussians.

Jenghiz Khan, Mongol ruler of China, 2-429

conquests, 18-6588

conquered Persia and Bagdad, 3-918

"Jenkins says," game, 6-2167

Jenner, Edward

discovered vaccination, 7-2485; 8-2728

Picture, portrait, 8-2721

Jenneval, Hippolyte-Louis-Alexandre Dechet,

author of *La Brabançonne*, 10-3612

See also Poetry Index for poem and note

Jennie Wren, bird, 9-3139

Jennings, Sarah, *see* Marlborough, Sarah

Jennings, Duchess of

Jerboas, animals, 3-1133

description, 7-2509

Pictures, 3-1129-30

Jerome, St., life of, 13-4860, 4862

Pictures

portrait, 13-4859

death of, 13-4865

Jersey. Largest and most important of the Channel Islands; area, 45 square miles; capital, St. Helier. Market gardening and cattle-raising are important.

Jersey, breed of cattle, 4-1262

Pictures (in color), facing 4-1258

Jersey City. Industrial city of New Jersey, on the Hudson, opposite New York. It has meat-packing, tobacco, glass and chemical factories, sugar refineries, lumber mills and railway workshops.

Jerusalem. Capital of Palestine and most famous holy city in the world, being sacred alike to Christians, Moslems and Jews. Divided into Christian, Moslem, Armenian and Jewish quarters, it contains the Church of the Holy Sepulchre and the Mosque of Omar.

capture by Nebuchadnezzar II, 2-659

churches built by St. Helena, 5-1692

destroyed by Titus, 70 A.D., 5-1863; 19-7158

Hebrew University, note and picture,

19-7159

in Crusades, 7-2586-89

Pictures, mosque of Omar, 15-5476

Solomon's Temple, model of, 19-7155

Jerusalem artichokes, 7-2624

Picture, 7-2621

Jesters, origin and history of, 19-7216

Jesuits, order founded by Loyola, 13-4869

missions in China, early, 2-432

missions in North America, 3-778; 18-6631-34

missions in South America, 19-6862

system of education, 14-5251-52

Jesuits' bark, cinchona, 8-2910

Jesuit's drops, 9-3152

Jesus Christ

birth of in reign of Augustus, 4-1199

birthday of, 11-4131

Poems about

Hymn on the Nativity of My Saviour, by

Ben Jonson, 17-6107

Into the Woods my Master Went, by Sidney

Lanier, 10-3740

Once in Royal David's City, by Mrs.

Alexander, 17-6108

See also Christmas—Poetry: Hymns

Questions about

Do we know the actual date of Christ's birth? 13-6550

What language was usually spoken by Jesus Christ? 10-3474

Pictures

portraits, from catacomb of St. Calixtus,

2-577

one attributed to St. Luke, 2-577

Among the Doctors, by Luini, 3-1103

And Pilgrims of Emmaus, by Velasquez,

4-1497

Betrayal by Judas, by Cimabue (graveure),

2-696

The Infant, by Murillo, 4-1494

The Last Supper, by Leonardo, 3-830

Washing Peter's Feet, by Ford Madox Brown

(graveure), 6-2237

With Saints, 12-4469

See also Madonna

Jet, variety of lignite, 3-788

Jewel-weed, note and picture, 15-5607

GENERAL INDEX

Jewelry

Pictures

ancient Irish, 8-2941

Anglo-Saxon, 4-1437

See also Necklaces

Jewett, Sarah Orne, American author, 13-4819

Jews

* achievements, 19-7162-68

architecture, 14-5210

art shows Assyrian influence, 11-3876

Babylonian captivity increased learning of, 18-6672

charities, 19-7167

civic rights given in England, 7-2298

* history, 19-7155-62

history (arranged chronologically)

in ancient Egypt, 3-815-16, 818

Egypt's influence on, 3-818

two kingdoms, Judah and Israel, 19-7156-57

carried into captivity by Tiglath Pileser III, 2-655

return from Babylon, 3-912

downfall of Jerusalem, 70 A.D., 5-1863;

19-7158

Arch of Titus shows Roman conquest, 4-1200

in America, 19-7164, 7167

in political life, 19-7162, 7164, 7167

literature, 15-5464

lost tribes, 19-7156-57

method of reckoning time, 11-4131

musical and dramatic leaders, 19-7162

orthodox and reformed parties, 19-7160

persecution of, 19-7158, 7160

Poland allowed them to settle, 13-4680

St. Bernard's defense of, 13-4862

scholarly achievement, 19-7164

survival as a race, reasons for, 19-7158

Zionism, 18-6676, 6678; 19-7160, 7162

For list of main articles, see 20-7597

Poems about

Babylon, by John Buchan, 8-3005

Sound the Loud Timbrel, by Thomas Moore, 8-2764

Pictures

Cyrus the Great, king of Persia, restoring

sacred vessels to Jews, 3-917

Hannah delivers Samuel to Eli, 19-7154

Some famous modern Jews, 19-7161, 7165-66

Jimmu, Japanese emperor, 2-562

Jimson-weeds, thorn-apples, 13-4782-83

Jinghis Khan, see Jenghiz Khan

Jingling, game, 18-6519

Jingo, Japanese empress, 2-562

Jingoism. Blustering patriotism. The term

originated with the phrase "By Jingo!" in a popular

song supporting Lord Beaconsfield's threat

of action against Russia in defense of Constantinople

in 1878.

Jinriksha, carriage of Japan, 2-565, 570

Picture, 2-565

Jiu-jitsu (or "soft art"). The Japanese form

of wrestling which makes use of opponent's

strength and weight to disable or injure him.

It is the application of skill and a knowledge

of human anatomy opposed to brute force. Now

extensively used as a form of physical culture.

Joan, Countess of Brittany, 12-4226

Joan of Arc

* life, 16-5819-21

and French war against England, 5-1684

canonization, 16-5821

influence of, 10-3434

Pictures

Joan of Arc, by Bastien-Lepage, 7-2479

scenes from her life, by Lenepveu (gravure), 16-5816

statue, by Frémiet (gravure), 16-5813

João, king of Portugal

rescued Christians from Ceuta, 4-1257

Job. The hero of the Old Testament Book of

Job, used as an example in the discussion as to

the cause of suffering. He loses his wealth,

his children and his health, but, in spite of his

friends, remains firm in his belief in God, and

ultimately triumphs.

Job's tears, see Peridot

Joe-Eye-weed, 14-5162

origin of name, 14-5159

Picture, 14-5159

Joffre, Joseph Jacques Césaire. Marshal of

France, commander-in-chief of Allied armies,

1915-16; born, Rivesaltes, 1852. Stayed the Ger-

man invasion at the first Battle of the Marne,

Joffre, Joseph Jacques Césaire (continued)

1914. The failure of French offensives of 1915, and the successful German attack upon Verdun in 1916 were a great blow to his prestige. Succeeded by Nivelle at the end of 1916. Sent on a special mission to the United States in the spring of 1917.

Johanan ben Zakkai, Jewish leader, 19-7158

Johannesburg. Largest South African city, in Transvaal. Founded in 1886, it owes its importance to its position as the commercial centre of the Witwatersrand gold-field, and it now covers 82 square miles.

Pictures, 9-3053

Johansen, Frederick Hjalmar, arctic explorer, 13-4716

John the Baptist, St.

Poem about, St. John the Baptist, by Arthur

O'Shaughnessy, 15-5647

Pictures, famous paintings and sculpture

by Andrea del Sarto (gravure), 3-964

by Benedetto da Majano (gravure), 13-4613

by Murillo, 4-1494

by Raphael (gravure), 3-964

with Madonna, by Michelangelo (gravure), 13-4613

with Madonna, early French, 13-4701

John, king of England

life and reign, 5-1570-71

and Pope Innocent III, 8-2850

Picture, signing Magna Carta, 5-1564

John II, king of France, captured at Poitiers,

5-1682

John III, Sobieski, king of Poland, saved Vienna

from Turks, 11-3964; 13-4682, 4800, 4802

Picture, statue in Warsaw, 13-4690

John I, king of Portugal, 14-5184

John VI, king of Portugal

reign in Brazil, 19-7042

John, Augustus, British painter, 8-2859

Pictures

George Bernard Shaw (gravure), 8-2861

Portrait of Mme. Suggia (gravure), 8-2861

John, Sir W. Goscombe, British sculptor, 13-4856

Picture of bust, Evelyn, 13-4853

John Brown's Body, song, origin of, 18-6513

John Dory, fish. *Picture*, 16-5777

John of Austria, called Don John

victory at Lepanto, 13-4803

John of Bologna, see Bologna, Giovanni da

John o' Groats. Point in Caithness-shire, re-

garded as the northernmost point of Great Brit-

ain. Its name is derived from a Dutchman,

Groot, who built a house here about 1600.

John of Montfort, 12-4226

Johns Hopkins University, note and picture,

12-4314

Johnson, Andrew, president of U. S.

administration, 11-3942

impeachment, 7-2444

life, outline of, 11-3953

Picture, portrait (gravure), 11-3947

Johnson, E. Pauline, Canadian poet, 14-5109

See also Poetry Index for poems and notes

Johnson, Eastman, American artist, 10-3453

Picture, The New Bonnet (gravure), 10-3464

Johnson, Eldridge E., developed Victor talking

machine, 1-264

Johnson, Esther, see "Stella"

Johnson, Jemima (1753-1814). A Kentucky

woman pioneer who was the heroine of an In-

dian attack on Bryan's Station, Kentucky, in

1782.

Johnson, Richard M., vice-president of U. S.

Picture, portrait (gravure), 11-3948

Johnson, Samuel

* Doctor Johnson and his friends, 5-1867-72

Pictures

portrait, with father, 15-5617

Dr. Johnson visiting Sir Joshua Reynolds,

7-2333

reading Vicar of Wakefield, 6-2258

walking with Oliver Goldsmith, 5-1869

Johnson, Sir William (1715-74). A famous

British officer and Indian-fighter who won his

title by defeating the French general Dieskau at

Lake George in 1755. He settled in the Mo-

hawk Valley, New York state, and won the

confidence of the Six Nations. He became noted

for his understanding and control of the tribes

in that locality. Johnstown, N. Y., is named

for him.

and Five Nations, 3-778

GENERAL INDEX

- Johnston, Albert Sidney**, general in Civil War sketch of life, 7-2443
- Johnston, Frank H.**, Canadian painter, 10-3704
- Picture*, Northern Night, 10-3704
- Johnston, Joseph Eccleston** (1807-91). American soldier, born in Virginia. He graduated at West Point; served in U.S. army until 1861, when he entered the Confederate service; held important commands to end of war. in command before Richmond, 7-2434 opposes Sherman, 7-2438 retreat to Atlanta, 7-2440 surrenders to Sherman, 7-2442 *Picture*, portrait, with note, 7-2431
- Johnston, Mary**, American author, 13-4823
- Joints**, in body in limbs, 5-1676-77 in skull, 5-1674 relation to bones and muscles, 5-1560 *Picture*, how biceps works elbow joint, 5-1805
- Joinville, Jean de**, wrote History of St. Louis, 18-6562
- Jókai, Maurus**, Hungarian author, 16-5888
- Joliet, Louis** explorations, 1-248 journey down Mississippi River, 18-6632-33
- Jolly Miller**, game, 10-3769
- Jonah**. A Hebrew prophet, to whom has been assigned the fifth book of the minor prophets. In this book Jonah disobeyed the command of God to preach to Nineveh, is cast into the sea, swallowed by a whale, repents and forces Nineveh to repent.
- Jonathan**, friendship for David, 19-7001-03
- Jones, Adrian**, British sculptor *Picture*, Peace Borne in a Chariot, 13-4857
- Jones, Inigo**, English architect, 18-6490-91
- Jones, John Paul** (1747-92). A famous naval officer in the American Revolution. Born in Scotland, his real name was John Paul. The Jones he added later. His exploits on the sea won him renown, but the English regarded him as a pirate. Later he served in the French and Russian navies, and died in Paris. advice on forming U. S. navy, 17-6325-26 and first salute to U. S. flag, 19-7183 buried in Annapolis, 18-6707 in American Revolution, 4-1170 note on, 17-6327
- * victories at sea, 17-6326 *Picture*, portrait, 17-6327
- Jones, J. W.**, and talking-machine inventions, 1-262
- Jones, Thomas S.**, see Poetry Index for poem and note
- Jones, Sir William**, see Poetry Index for poem and note
- Jonson, Ben**, English poet life and writings, 3-1125 See also Poetry Index, for poems and notes *Picture*, portrait, 10-3605
- Jonson, Cornelius**, British painter, 6-2000 *Picture*, Portrait of Sir John Coke, 6-2003
- Jordaens, Jacob**, Flemish painter, 5-1586 *Picture*, Singing the Old Songs, 5-1591
- Jordan, Mrs. (Dorothy Bland)**, actress *Picture*, portrait by Hoppner, as Comic Muse (gravure), 6-2116
- Jordan**. Remarkable river of Palestine, rising near Mount Hermon and flowing almost entirely below sea-level; the Dead Sea, into which it runs, is 1,290 feet below the Mediterranean, and the Sea of Galilee 680 feet. No large town has stood on its banks, and it has never been navigable. 120 miles.
- Joseph**, in Egypt, 3-815-16
- Joseph, St.**, of the Studium, hymn by, 12-4436
- Josephine**, empress of France birthplace in Martinique, 19-7104 marriage to Napoleon, 6-2200 divorced by Napoleon, 6-2206 death at Malmaison, 6-2208 *Picture*, Coronation of, by J. L. David, 6-2079
- Josephus**, Jewish historian, 15-5464; 19-7225
- Josselin, Château of**, 18-6494 *Picture*, 18-6497
- Joubert, Joseph**, French author, 18-6716
- Jouffroy, Marquis de** invented a steamboat, 17-6208
- Joule, James Prescott**, English scientist, investigator of thermo-dynamics; born, Salford, 1818; died, Sale, 1889. and relation of heat to work, 15-5570
- Journal of the Plague Year**, by Defoe, 4-1481
- Journalism**, Defoe founded in England, 4-1480
- Journeyman**, in apprentice system, 18-6442
- Joy, George W.**, British painter *Pictures* Nelson's Good-bye to his Grandmother (gravure), 6-2209 The Vision of Joan of Arc, 16-5817
- Juan Fernandez**. Largest of a group of islands lying 360 miles west of Chile; area, 36 square miles. Alexander Selkirk, hero of Defoe's Robinson Crusoe, lived alone here (1704-09).
- Juarez, Benito Pablo**, president of Mexico, 19-7138
- Jubilee Bridge**, India, note and picture, 1-35
- Judas Iscariot** *Poem about*. Judas Iscariot (last part of poem), by Robert Buchanan, 14-5239
- Judas Maccabeus**, Jewish hero, 13-4584; 19-7157
- Judas tree**, 12-4386
- Judgment**. In law, the act of determining in the courts what is conformable to law and justice.
- Judith**, ship of Sir Francis Drake, 14-4960
- Juggernaut**, festival of, 8-2700
- Jugo-Slavia** * history and description, 17-6344 national hymn of Serbia, 17-6255 population, 5-1606 portion added from Hungary, 17-6340 since World War, 18-6459 trade of, 17-6346 *Pictures*, 17-6347
- Juiva**, name for Brazil nut, 6-2280
- Julian Calendar**. Introduced by Julius Caesar in 46 B.C., and slightly modified under Augustus, in which the year was made to consist of 265 days, each fourth year having 366 days, and the months the same length, names and order as now. Superseded in 1752 in Great Britain and the English colonies in America by the Gregorian. See Gregorian Calendar.
- Julius II, Pope** and building of St. Peter's, 17-6309 patron of Michelangelo, 3-831; 13-4608 *Pictures*, portrait by Raphael (gravure), 3-962 Michelangelo's figures for his tomb; Fettered Slave; Moses (gravure), 13-4612-13
- Julius Caesar**, see Caesar, Julius
- Julius Caesar**, play by Shakespeare, note on, 3-983-84
- July**. The seventh month of the year, with 31 days. Named for Julius Caesar.
- Jumbles**, almond, recipe for, 9-3376
- Jumbo**, elephant, 6-2140
- Jumna**. Chief tributary of the Indian Ganges, rises in the Himalayas and joins Ganges near Allahabad. On its banks are Delhi, Agra and Allahabad. 860 miles.
- Jump-peg**, game, 1-339
- Jumping** *Question about*. Why do we jump when we get a shock? 7-2612
- Jumping bean** *Question about*. What is inside the jumping bean? 2-584
- Juncos**, birds, 13-4835 of Oregon, 14-5147
- June**. The sixth month of the year with 30 days. Named for the Junius, a Roman gens or clan. *Poem about*. Vision of Sir Launfal, by J. R. Lowell; quotation, 4-1515
- June-berry**, 12-4512, 4514
- June bug**, description, 18-6628
- Juneau**, Alaska site and population, 10-3585 *Picture*, 10-3585
- Jungfrau**. One of the chief mountains of the Bernese Oberland, Switzerland. It has two sister peaks, the Mönch and Eiger. 13,670 feet.
- Jungle fowls**, Indian ancestor of domestic fowls, 2-593; 12-4366 how differ from hens, 12-4491 varieties, 12-4491 *Picture*, 12-4362
- Juniper**, tree or shrub so-called red cedar, one variety, 11-4105
- Junius Letters**. A series of caustic political letters directed against the British ministry and others, 1768-72. They were signed "Junius," and though the authorship is not certain, they were probably written by Sir Philip Francis.

GENERAL INDEX

Juno (Hera), goddess, 9-3226
Picture, sculptured head, 12-4219
Junto, club founded by Franklin, 12-4449
Jupiter (Zeus), god, 9-3226
 statue of, by Phidias, 7-2604
Picture, statue by Phidias, reconstruction (gravure), 7-2608
Jupiter, planet
 * account of, 10-3409-10
 distance from earth, measured by speed of train, 9-3034
 distance from sun and length of year, 9-3180
 effect on Comet Brooks, 10-3666
 parts of surface move independently, 9-3176
 red spot, changes in, 18-6693
Picture, showing belts and red spot, 10-3410
Jura Mts. Thickly wooded mountain range lying between Switzerland and France. 180 miles long, it divides the Rhone valley from that of the Rhine. 5,650 feet.
Jurassic period, *see* Geology—Jurassic period
Jury system, 13-4813
Justice
 Themis, the goddess of, 9-3227-28
 Ulpian's definition, 13-4812
Justice of the peace. In Great Britain and the United States, a minor judge whose duties are to administer justice in minor cases and commit for trial to a superior court.
Justinian, emperor of Rome
 code of laws, 13-4812
 introduced silk-making into Europe, 15-5307-08
Jute
 account of, 8-2788
 makes an inferior rope, 11-3792
Picture (in color), 8-2997
Jute-fibre, uses of, 5-1627
Jutes, where settled in England, 4-1429
Jutland, Battle of. A great naval engagement that took place in 1916 off Jutland between the British and German high-seas fleets. Although the German fleet escaped, it never emerged again upon the high seas to fight.
Juvenal, Roman poet, 16-5913
Juvenile courts, 14-4916
Juventas, cupbearer of the gods, 9-3228



Kaaba. Sacred shrine at Mecca. It is the point toward which all Mohammedans face during their devotions.
Kabail, *see* Kabyles
Kabul, Afghanistan, note and picture, 18-6587
Kabyles, Berber tribes, North Africa, 18-6810
Kafir corn, note and picture, 13-4523
Kafirs, *see* Kafirs
Kafirs, African tribe
 and the Boers, 9-3050
 stories and legends, 5-1582-83
Kagu, bird, 11-4010
Picture, 8-2756
Kairouan, sacred city of North Africa, 18-6810
Kaiser. A title meaning "emperor"; from 1871 to 1918 applied especially to the Hohenzollerns of Germany.
Kaiser Wilhelm Canal, 12-4168
Kakapo, bird, 10-3618
Picture, 10-3613
Kakas, birds, 10-3614
Kalahari Desert. Vast arid stretch of country in the west of South Africa, largely in Bechuanaland. It has a general elevation of from 3,000 to 4,000 feet, and stretches 600 miles from north to south.
Kalakaua I, David, king of Hawaii, 10-3586
Kalamazoo River. American river, rising in Hillsdale County, Michigan; flows into Lake Michigan. 200 miles.
Kale, plant
 curly kale, 7-2618
Pictures
 curly kale, 7-2619
 sea kale (in color), 14-4982
Kalends, Greek and Roman, 5-1752
Kalevala, epic of Finland, 19-7014
Kalmia, account of, 13-4774, 4776
Kalmucks, Russian nomads, 16-5850

Kamakura, city of Japan, sights of, 2-570
Picture, statue of Buddha, 9-3086
Kamchatka. Peninsula in northeast Siberia, containing a lofty chain of volcanic mountains. The climate is cold and damp, and the people get their living chiefly by hunting and fishing. Petropavlovsk on the Pacific coast has a splendid harbor.
Kamehameha, King of Hawaii
Picture of statue, 10-3587
Kaministiquia River, Canada
Pictures, 6-1959
Kamo, Nigeria, 9-3056
Kampala, or Mengo, Uganda, 9-3054
Kane, Elisha Kent, arctic explorer
 explorations, 13-4708, 4710
Pictures
 portrait, 13-4707
 in winter quarters, 13-4720
Kane, Paul, Canadian painter, 10-3699-3700
Kangaroo rats, 7-2503
Kangaroos
 * Kangaroos and their kin, 7-2501-10
 first seen by Englishmen, 6-2214
Pictures, 7-2501; (gravure) 7-2505, 2507-08
Kansas. Prairie state on the right bank of the Missouri; area, 82,158 square miles; capital, Topeka. It has great agricultural and stock-raising industries, the source of an important meat-packing trade at Kansas City, which is partly in Kansas and partly in Missouri. The state produces coal and petroleum, as well as zinc and lead. Nickname, "Sunflower State." State flower, sunflower. Motto, "Ad astra per aspera" (To the stars through difficulties). Kansas was the name of a Sioux tribe. First settlement is thought to have been at Leavenworth, 1854.
 described in North Central States, 15-5273-84;
 17-6037-48
 included in Louisiana Purchase, 5-1702-03
 John Brown in, 7-2430
 Kansas-Nebraska Bill, 7-2429; 11-3942
 made a state, 6-1922, 1923; 11-3942
 most important wheat state, 15-5278
Pictures
 flag (in color), 19-7191
 flour mills at Salina, 17-6039
 views in Wichita and Topeka, 17-6045
Kansas City. Two cities of U.S.A., one in Kansas and the other in Missouri. They are divided by the State Line, although otherwise practically one city, and have a great trade in grain, meat and live stock.
 situation, 17-6046
Pictures, stock farms and stockyards, 15-5277
Kansas-Nebraska Act, terms, and effect, 7-2429
Kaolin, clay used in pottery, 5-1663-64
 sources, for French pottery, 11-3818
Kapiolani, of Hawaii
 defied goddess Pele on volcano, 2-446
Kapteyn, J. C., and sun's relation to group of stars, 1-312
 quotation about truth, 9-3040
Kapurthala, India
Picture, temples (gravure), 9-3094
Karachi, port in India, 8-2698
Karakoram Mts. Lofty range forming an immense barrier between Central Asia and Kashmir. Here are Mount Godwin Austen, 28,250 feet, and some of the greatest glaciers in the world.
Karamzin, Nicholas, Russian author, 19-6907
Karlsefni, Snorro, first white child in America, 1-241
Karlsefni, Thorfinn, colony in America, 1-241
Karlsruhe. Capital of Baden, Germany, making engines, chemicals and cloth.
Karluk, ship, loss of, 13-4722
Karnak, Egypt
 erection of temples, 3-818; 14-5212
Pictures, views of temples, 3-813
 (gravure) 14-5213, 5216
Karroo, Great and Little. Pastoral tablelands covering 100,000 square miles in the Cape Province of South Africa. On an average they are about 3,500 feet high.
Kaschau, Kosice or Kassa. Chief city of Slovakia, Czecho-Slovakia, with a fine Gothic cathedral.
Kashmir. Native state of northern India; area, about 85,000 square miles; capital, Srinagar. Much of it consists of a barren tableland be-

GENERAL INDEX

Kashmir (continued)

tween the Karakoram range and Himalayas, but in the Jhelum valley is the Vale of Kashmir, one of the most fertile spots in the world.

Kasson, Gunnar, saved Nome from epidemic, 16-5735, 5737

Picture, 16-5737

Katherine, Queen, wife of Henry V of England, 5-1684

Kathleen Mavourneen, song, origin of, 10-3610-11

Katmai, Mount, volcano, 16-5795

Katrine, Loch. Beautiful Scottish lake in Perthshire, in the famous Trossachs region. Scott describes its scenery in *The Lady of the Lake*.

Katte, and Frederick the Great, 11-4046

Kauai, one of Hawaiian Islands, 15-5448

Kavala, seaport of Aegean Sea

rescue by Greek fleet, 17-6395-96

Kazan. Trading centre of eastern Russia, on the Volga. Formerly a Tartar city, it has a kremlin containing a splendid monastery and a 16th-century cathedral.

Kearny, Stephen W., American general in Mexican War, 6-1920

Kearsarge, ship

Picture, battle with Alabama, with note, 7-2435

Keas, birds, 10-3614

Picture, 10-3615

Keats, John

* life and writings, 7-2492-93

influenced by Homer, 16-5747

See also Poetry Index for poems and notes

Picture, portrait, in group, 7-2488

Kebble, John, hymn-writer, 12-4440

See also Poetry Index, for poems and notes

Picture, portrait, 12-4439

Ked, parasitic insect, 16-6019

Keel of a ship, 14-5002

Keewatin. Part of the Canadian Northwest Territories lying west of Hudson Bay and north of Manitoba.

See also 4-1490

Keller, Helen, life, 14-5272

Kellogg, Idaho, note on mines, with *picture*, 19-6843

Kells. Town in County Meath, on the Blackwater. In the 6th century St. Columba founded here a monastery in which the Book of Kells was written; ancient remains include St. Columba's House, a round tower and crosses.

Kells, Book of, illuminated manuscript, 2-582

Picture, page from, 8-2941

Kelp. The name of certain large seaweeds, also applied to the ash obtained from burned seaweed. Formerly much used in the manufacture of soap and glass, but used to-day mainly as a fertilizer, and for that only dried on the coast. Pacific kelp contains five times as much potash as Atlantic kelp.

Kelvin, William Thomson, 1st lord, scientist, 12-4182

discoveries in telegraphy, 17-6241

inventions of, 19-7207-08

siphon recorder, 12-4296

Pictures

portrait, 19-7201

portrait, with father, 15-5615

Kemble, Fanny. Shakespearean actress and poet, daughter of Charles Kemble; born, 1809; died, 1893.

See Poetry Index for poem and note

Kempenfelt, Admiral, lost on Royal George,

11-3918

Poem about. The Loss of the Royal George, by Cowper, 1-324

Kempis, Thomas à, see Thomas à Kempis

Kemyss, Captain, and Sir Walter Raleigh, 14-4970

Ken, Thomas. English writer of hymns, one of the famous Seven Bishops; born in England, 1637; died, 1711.

hymns of, 12-4438

Picture, portrait, 12-4439

Kenia, volcano, height of, 7-2313

Kenilworth. Market town in Warwickshire, four miles north of Warwick. The 12th-century castle, made famous by Scott's *Kenilworth*, is one of the largest and finest ruins in England.

Kenilworth, by Scott, note on, 11-4070

Kennel for dog, how to make, 16-5766

concrete, how to make, 17-6259-60

Kenneth, king of Scotland, 4-1434

Kensett, J. P., American painter, 9-3322

Kensico reservoir, description, 14-5056

Picture, 14-5056

Kent. Southeastern English county; area, 1,555 square miles; capital, Maidstone. The most famous, historically, of the English counties, it was the way by which the Romans, the Jutes, and St. Augustine entered Britain; here are Canterbury, and several ancient Cinque Ports, notably Dover, Hythe and Sandwich. At the mouth of the Medway are Chatham, Rochester and Gillingham, forming an important industrial area; the Isle of Thanet is famous for its watering-places; and other notable features are the North Downs, the Weald and Romney Marsh. The most famous seaside resorts are Ramsgate, Folkestone, Margate, Broadstairs and Deal; other places are Dartford, Tunbridge, Tunbridge Wells, Ashford, Sheerness, Gravesend, Faversham and Sevenoaks. Kent is famous for its hops, fruit and sheep, while its fisheries are important. Coal is mined near Dover, and Whitstable has oyster beds.

Kentucky. Largest tobacco-producing state; noted also for its horses; produces coal and petroleum, and manufactures much tobacco; area, 40,598 square miles; capital, Frankfort. Louisville is the largest town. Abbreviation, Ky. Nickname, the "Blue Grass State." State flower, golden-rod. Motto, "United we stand, divided we fall." "Kentucky" comes from an Iroquois word meaning "Land of to-morrow" or "Dark and Bloody Ground." First settlement, Harrodsburg, 1774.

described in Southern States, 13-4517-28;

14-4889-4900

history

considered a part of Virginia, 6-1906

explored by Daniel Boone and others, 6-1906

fifteenth state, 6-1906; 11-3937

in War of 1812, 5-1706

in Civil War, 7-2432-33

life of Boone, 6-2189-95

Mammoth Cave in, 4-1299

Pictures

birthplace of Lincoln, 18-6838

Daniel Boone as hunter, 6-2193

early days in Kentucky, 6-2191

flag (in color), 19-7190

hemp field, 13-4523

Mammoth Cave, 4-1298, 1300-01, 1303

stock farm near Lexington, 13-4521

tobacco field, 13-4525

Kentucky River. American river, rising in the Cumberland Mountains, Kentucky. Flows into the Ohio River. 250 miles.

Kenya Colony, Africa, 9-3054

Pictures, 9-3057-58

Keokuk, Iowa, dam at, 16-5654, 5656

Picture, dam and locks, 16-5656

Kepler, John (Johann), German astronomer

life and work, 1-206

discovered laws of planetary motion, 13-4795

observation about moon, 10-3540, 3542

Picture, listening to Tycho Brahe, 1-204

Kerosene. A mixture of certain fluid hydrocarbons used for illumination. Has been prepared from bituminous coal and shale (hence called also coal-oil), now produced in immense quantities by the refining of petroleum. Chemically, it is a mixture of several hydrocarbons, chiefly of the methane series.

first manufacture, 13-4534

uses, 13-4540

See also Petroleum

Kerry. Rugged western county of Munster, Ireland; area, 1,815 square miles; capital, Tralee. Here are the Lakes of Killarney, and Carrantuo-hill, 3,414 feet, the highest Irish mountain.

Kerry, breed of cattle, 4-1262

Picture (graveure), 4-1268

Kertland, Philip, shoemaker, 13-6442

Kestrel, bird, 10-3756

Pictures (graveure), 10-3764; (in color), 9-3283

Ketch, sailing vessel, rig of, and *picture*,

11-4086-87

writings of, 12-4435

Kettle, Tom, see Poetry Index for poem and note

Kettle

Questions about

What makes the kettle boil? 12-4277

Why does Mother put a marble in the kettle? 5-1809

GENERAL INDEX

Kettle—Questions about (continued)

- Why does the kettle not get red-hot when it is heated? 13-4594
 Why does the kettle sing? 11-4134
Kettle-stitch, how to make, 12-4262
Kevin, St., Irish hermit, 8-2933
Kew Gardens, rubber plants raised, 4-1408
Key, Ellen, Swedish author, died, 1926, 19-7014
Key, Francis Scott
 writing of Star-Spangled Banner, 18-6512
 See also Poetry Index for poem and note
Key, telegraph instrument, 17-6050
Keys, *see* Locks
Khafra, king of Egypt, 3-815
 Picture, portrait, 3-817
Kharkov, Capital, university and trading centre of the Ukraine, Russia.
Khartoum, Sudanese capital, at the junction of the Blue and White Nile. Famous as General Gordon's headquarters, it is a railway centre, and contains a cathedral and the Gordon Memorial College.
Khedive, The title granted in 1867 by the sultan of Turkey to the viceroy of Egypt.
Khirgiz, Russian nomads, 16-5850
Khufu, king of Egypt, 3-808
 Picture, Great Pyramid, built by him, 3-811
Khu-n-Aten, king of Egypt, *see* Amenhotep IV
Khyber Pass, Mountain highway which from the earliest times has been the road of invaders entering India. Running for about 30 miles among the wild border ranges of Afghanistan, it is traversed by the trade route from Kabul to Peshawar.
Kiang, animal of horse family, 6-2020
 Picture, 6-2019
Kiaochow, fortress in China
 in the World War, 2-566
Kidd, William (c. 1650-1701). A British sailor who became the notorious pirate Captain Kidd. He was hanged at Execution Dock, London, in 1701. People still search for the treasure believed to have been buried by this pirate.
 See also 2-555
Kidneys, work of, 3-939; 4-1213
Kiel, German naval port on the Baltic, near the eastern entrance to the Kiel Canal. It has large shipbuilding yards and a busy export trade.
 Picture, Krupp works (gravure), 12-4178
Kiel Canal, note and picture, 13-4789
Kier, Samuel M., and carbon oil, 3-996; 13-4534
Kierkegaard, Søren, Danish philosopher, 19-7011
Kiev, Ukraina
 Chronicle of Kiev, 19-6905
 description, 16-5858
 Picture, Nicholas suspension bridge, 16-5855
Kilauea, volcano, Hawaii, 7-2290; 15-5447
 crater of, 2-446
 description, 10-3584
 fire pit, 7-2291
 world's greatest active crater, 9-3300
 Pictures, 2-446; 7-2291; 15-5446
 lava, 2-525
Kilimanjaro, mountain, Africa
 height of, 7-2313
 temperature at top, 8-2664
 Picture, 9-3057
Kilkenny, Statute of, 8-2932
Killarney, song, origin of, 10-3611
Killarney, Lakes of, Three Irish lakes among beautiful wooded scenery near Killarney, County Kerry, Ireland.
 Pictures, 8-2939
Killdeer, bird, variety of plover, 11-4010; 14-5020
Killer whale, 6-2218-20
 Pictures, 6-2215, 2219
Kilmer, Joyce, American poet, 17-6394-95
 See also Poetry Index for poem and note
Kilns, cement
 description, with picture, 7-2308
Kilns for china, 5-1663-72
 Pictures, 5-1670-72
Kilns for hops
 Question about, Why has a hop kiln a funnel-shaped movable top? 7-2484
Kimberley, South African cathedral city in Griqualand West, Cape Province. Here are the De Beers diamond mines, the most important in the world, around which the city has grown up since 1870. It underwent a severe siege by the Boers, 1899-1900.
 diamonds mined there, 9-3052

- Kinchinjunga**, Second highest mountain in the Himalayas, 28,150 feet.
 Picture, 7-2317
Kindergarten and Froebel, 14-5254
Kindness to animals, 5-1810
 preached by St. Francis, 6-1991
 slaughter-houses, 7-2567
Kinemacolor, moving pictures in color, 18-6598, 6600
Kinetoscope, invented by Edison, 18-6594
King, Mrs. Harriet E., *see* Poetry Index, for poem and note
King, William Lyon Mackenzie, premier of Canada, 4-1492
 as author, 15-5368
King, William E., vice-president of U. S.
 Picture, portrait (gravure), 11-3948
King, the Nobleman and the Peasant (story), 3-857
King Arthur, *see* Arthur, King
King Christian Stood beside the Mast, song
 account of, 10-3612
King George's War, *see* French and Indian Wars
King Lake dam, Washington, note and picture, 15-5428
King Lear, play by Shakespeare, note on, 3-985
 Picture, 3-987
 "King of Beasts," name for lion, 2-494
King of the Castle, game, 17-6257
King of the Golden River, by Ruskin, 6-2221-28; 7-2343-50
King snake, 15-5414
King William's War, *see* French and Indian Wars
Kingbird, account of, 9-3286; 13-4831
 of southern U. S., 14-5023
 Pictures (in color), 10-3622; 13-4843
 western kingbird, facing 14-5133
Kingscup, name given in some districts to the marsh-marigold, 16-5728
Kinges Quhair, poem by James I of Scotland 12-4212
Kingfishers, birds, account of, 9-3374
 belted, 13-4830; 14-5147
 Pictures, 9-3367, 3369
 European kingfisher (in color), 9-3131
 nest and eggs, 9-3369
 Senegal kingfisher (in color), 12-4372
 small racquet-tailed kingfisher (in color), 12-4371
Kingfishes, 16-5780
 See also Whitings
Kinglets, birds
 account of, 13-4839
 of western North America, 14-5138
 Picture, golden-crowned (in color), 9-3132
Kings
 Poems about
 Beggar Maid, by Lord Tennyson, 2-736
 Coronation, by H. H. Jackson, 9-3275
 Enchanted Shirt, by John Hay, 1-102
 King and the Abbott, 10-3735-36
 King Bruce and the Spider, 15-5521
 King Christian Stood Beside the Mast, 17-6252
 King Cophetua and the Beggar Maid, ballad 2-487
 King Lear and His Three Daughters, 5-1643-44
 King's Picture, 18-6648
King's College, predecessor of Columbia University, 12-4308
 note and picture, 10-3496
King's Mountain, Battle of, 4-1171-72; 6-1908
Kingsley, Charles, English writer
 as a novelist, 11-3892, 3894
 poetry of, 12-4231
 * Westward Ho, summary and quotations, 14-5027-34
 wrote fairy tales, 9-3197
 See also Poetry Index for poems and notes
 Pictures
 portrait, 9-3193
 walking by the sea, 11-2862
Kingston, Capital and port of Jamaica, with a magnificent harbor. A great export and import centre, it has a delightful climate, but is subject to hurricanes and earthquakes.
Kingston, Ontario
 description, 6-1958
 first Parliament meets, 1641, 4-1484
Kinkajou, animal, 3-872
 Picture, 3-868

GENERAL INDEX

- Kinney, Coates**, *see* Poetry Index for poem and note
- Kinnikinnik**, or bearberry, 11-4020; 14-5165
- Kinzie, John**, first white man to live in Chicago, 19-7106
- Kioto**, old capital of Japan, description, 2-572
- Kipling, Rudyard**, author, 11-3899
poetry of, 12-4233
See also Poetry Index for poems and notes
- Kirby, William**, Canadian author, 15-5368
- Kirke, Sir David**, English adventurer
led attack on Quebec in 1628, 2-680
- Kirumbos**, birds, 9-3374
- Kiss-me-quick**, name for Herb Robert, 14-4975
- Kitasoto, Dr.**, discovered bubonic microbe, 15-5486
- Kitchen**
Pictures, in American colonies, 3-967; 18-6508
- Kitchener of Khartoum, Horatio Herbert, Earl**. Born Ballylongford, County Kerry, Ireland, 1850; lost at sea, 1916; conquered the Sudan, 1898; as Secretary of State for War, organized the British army, 1914-15.
- Kites**
how to make, 3-900-01; 16-5770-71
Franklin's experiments concerning electricity and lightning, 4-1248-49
Marconi's use, in experiments with wireless, 17-6247
Question about. What power keeps a kite floating in the air? 16-5840
- Kites**, birds
account of, 10-3756
of southern North America, 14-5021
Pictures, 10-3755
black kite (gravure), 10-3763
common or red kite (gravure), 10-3764
European kite (in color), 9-3130
- Kittiwake**, variety of gull, 11-4122
Pictures, 11-4123; (in color), 9-3284
- Kittredge, Walter**, song-writer, 18-6514
- Kiushiu**, island of Japan, history, 2-570
- Kiwi**, bird, 13-4657
Pictures, 13-4655
- Kleist, E. G. von**, and Leyden jar, 4-1246
- Kleist, Heinrich Wilhelm von**, German author, 17-6271
Pictures, portrait, 17-6270
- Klipspringer**, animal, 4-1444
Pictures, 4-1445
- Klondike gold mines**
discovery, 10-3584; 16-5790
- Klopstock, Friedrich Gottlieb**, German poet, 17-6268
Pictures, portrait, 17-6270
- Knapweed**, flower
Pictures (gravure), 19-7177
Pictures (in color)
black knapweed, 14-4994
great knapweed, 14-4986
- Knee-cap**, account of, 5-1677
- Knee-holly**, name for Butcher's broom, 17-6124
- Kneller, Sir Godfrey**, German painter
place in British art, 6-2000
Pictures
Portrait of Dr. John Wallis, 6-2002
Portrait of John Gay, 6-2003
Portrait of Marlborough, 6-2002
Portrait of Sarah Jennings, 6-2002
- Knickerbocker, Diedrich**, pseudonym of Washington Irving, 13-4625
- Knife-and-fork box**, directions for making, 13-4734
- Knife carving**, *see* Woodcarving
- Knight, Charles R.**, artist
Pictures. Painting of mammoth, 6-2147
- Knight, Joseph**, wrote music of Rocked in the Cradle of the Deep, 10-3608
- Knight and the Ugly Old Woman**, by Chaucer, 13-4773
- Knighthood**. An institution which arose gradually throughout Europe as an adjunct of the feudal system. A knight was bound to the performance of certain duties, as the defense or recovery of the Holy Sepulchre, and observed a code of knightly etiquette. In the 16th century knighthood came to be an honor conferred on civilians for valuable services rendered, the right to bestow belonging in England to the sovereign. It carries the title of Sir.
- Knights**
in mediæval Germany, 11-3963, 3967
See also Arthur, King; Crusades
- Knights (continued)**
Poems about
Love and the Young Knight, by T. G. Roberts, 10-3484
Sir Galahad, by Lord Tennyson, 3-1006
Pictures, vigil at the altar, 14-5197
- Knights Hospitallers, Order of**
when founded, 7-2586
- Knights of St. John, Order of**
defended Malta against Turks, 9-3182
when founded, 7-2586
- Knights Templars, Order of**
when founded, 7-2586
- Knitting**, child's sock, 13-4851-52
- Knives**
* history, use and manufacture, 4-1305-13
as drawing compass, 16-5886
how to clean, 15-5335
Pictures of manufacture, 4-1305-13
- Knossos, Palace of**, Crete
age, 14-5212
paintings, 2-448-49
ruins show effect of fire, 2-449
Pictures
game board found there, 2-449
throne room (gravure), 14-5215
wall-paintings, 2-452-53
- Knot**, bird, 11-4012
flies from Arctic to Antarctic, 8-2762
Pictures, 11-4011
- Knot**. In seamanship, a measurement of a ship's speed, so called from the knots at regular intervals on the log-line. The speed is reckoned in knots, that is, nautical miles per hour.
- Knot-grass**, weed, 7-2410
- Knot-stitching**, directions for, 6-2046
- Knots**, how to tie, 1-342-43
sailors' hitches and splices, 9-3378-79
- Know Nothing party**, organization of, 11-3942
- Knowles, Elizabeth McGillivray**, Canadian painter, 10-3704
note on, 10-3710
- Knowles, Farquhar McGillivray**, Canadian painter, 10-3704
Pictures. Thunder Cloud, 10-3710
- Knowles, Sheridan**, British painter
Pictures. King Wenceslas, 3-842
- Knox, John**. Scottish statesman, religious reformer and writer, leader of the Scottish Reformation; born, Haddington, 1505; died, Edinburgh, 1572.
- Knox, Henry** (1750-1806). American Revolutionary soldier, born in Boston. He served with credit through the whole war, and was Secretary of War (1785-95) both under the Confederation and under the Constitution.
note and portrait, 5-1699
- Koala**, or Australian bear, 7-2504, 2509
Pictures (gravure), 7-2508
- Kobe**, city of Japan, 2-570, 572
- Koch, Robert**, German scientist
life and work, 15-5484, 5486
and tuberculosis, 2-559
Pictures, portrait, 15-5481
in his laboratory, 15-5486
- Kochanowski**, Polish poet, 13-4682
- Kodak**, camera, invention of, 18-6594
- Koehl, Capt. Hermann**, German aviator, 1-182
- Koh-i-nur**, famous diamond, 19-7233
- Kohl-rabi**, development from cabbage, 7-2618
Pictures. 7-2619
- Koltsov, Alexis**, Russian poet, 19-6908
- Kongo Free State**, *see* Congo Free State
- König, Frederick**. German printer; born, Eisen, Prussia, 1774; died, 1833; inventor of the steam press.
press used by London Times, 9-3389
Pictures, portrait, 9-3383
first cylinder press of, 9-3388
- Königsberg**. Capital of East Prussia, Germany, on the Pregel. It has a university and a 14th-century Gothic cathedral.
- Koran**, sacred book of Mohammedans
* account of, 15-5464
origin, 9-3091
varied contents, 9-3097
- Korea**
* description, 2-566
history
conquered by Hideyoshi, 2-564
Japan in, since 1905, 2-566
resources, 2-566
Pictures, 2-574



Koreans in Japan, 2-562

Kosciusko, Thaddens. Polish patriot and general; born, Merezowszczyzna, Lithuania, 1746; died, Solothurn, Switzerland, 1817. Fought in American Revolutionary army; and constructed fortifications at West Point; afterward prominent in unsuccessful Polish struggles for independence.

led Polish uprising, 13-4684

Picture, portrait, 4-1161

Kossuth, Louis. Hungarian patriot; leader of revolt against Austria in 1848; born, Monok, 1802; died, Turin, 1894.

See also 13-4590

Picture, portrait, 13-4583

Koweit, Arabia, 18-6676

Krafft, Adam, stone-carver, 13-4699-4700

Krait, snake, 15-5414

Krak, Prince, founder of Cracow, 13-4679

Krakatoa. East Indian island lying between Java and Sumatra. It once occupied 18 square miles, but in 1883 a tremendous volcanic eruption from an old crater blew away two-thirds of it, hurling thousands of tons of ash and pumice into the air. The explosion was heard 3,000 miles away, and was followed by tidal waves which drowned thousands of people.

Kraker, imaginary monster, description, 1-358

Kranach, Lucas, see Cranach, Lucas

Kreighoff, Canadian painter, 10-3700

Picture, The Toll-gate, 10-3699

Kremlin, in Russian cities, 16-5858

Kronos, god, 9-3226

Kruger, Paul, president of the Transvaal

in Boer War, 9-3050

Krummacker, Friedrich Adolf, see Poetry Index for poem and note

Krupp Works. Great factories at Essen, Prussia, for the making of war munitions and ordnance supplies. Their founder was Frederick Krupp, whose son Alfred introduced the Bessemer steel process into Germany. Limited in their armament production after the World War, they manufacture agricultural implements and machinery of all kinds.

Krus, Kru-boys, or Kru-men. Dwellers by the West African coast from below Monrovia to Cape Palmas. Originally living in the interior of Africa, they have developed a great love for the sea, and are much employed by European skippers trading on that coast. They are hard-working and cheerful, but greedy and brutal.

Krylov, Ivan, Russian poet, 19-6907

Ku Klux Klan, after Civil War, 7-2444

Kuala Lumpur, Selangor, population, 9-3184

Kublai Khan, Mongol ruler of China

and Marco Polo, 1-84-85; 2-432

attempt to invade Japan, 2-563

chose Peking as capital, 2-432

Kuching, capital of Sarawak, 9-3186

Kudos. Greek word meaning "renown"; used in conversational English in a similar sense.

Kudu, animal, 4-1443

Picture, 4-1440

Kum, Persia

Picture, mosque, Fatima's shrine, 3-921

Kumasi, capital of Ashanti, 9-3056

Kumquats, variety of orange, 6-2058

Kunz, George F., authority on precious stones, 19-7234

Kunzite, semi-precious stone

Picture (in color), facing 19-7225

Kurds. Modern representatives of the ancient Medes who are speakers of an Aryan language. They inhabit Kurdistan.

Kurile Islands. Volcanic island chain stretching from Japan to Kamchatka. Most of them are inhabited only during the summer fishing season. The name comes from the Russian word *kurit*, to smoke, as many of the volcanoes are still active.

Kustenje, Rumania, see Constantza

Kut-el-Amara, siege of, 8-2802

Kuyt, Albert, see Cuyt, Albert

Kwen Lun. Lofty mountain chain stretching for 2,000 miles through China, Tibet and Kashmir. At its western end it is 20,000 feet high.

Kyak, Eskimo canoe, 7-2566

Kyoto. Capital of Japan 793-1869, and centre of the Japanese artistic industries. It is situated on the island of Hondu, on the Kamagawa River. It has an Imperial university with colleges of law, medicine and engineering.

Laberius, Decimus, Roman author, 16-5909

Labiate Family, see Mint Family

Labor, element in economic production

adds value to raw material, 9-3212, 3214

classes of, in manufacture, 17-6092

relation to price, 16-5936

saving of, through invention and organization,

produces wealth, 15-5357-58

supply of, governs price, 17-6094

See also Labor, Division of; Laboring classes;

Wages

Labor, Department of, U. S., 5-1792

Labor, Division of, 15-5358

in human body and in society, 19-6876-77

in shoemaking, 18-6442

meaning and advantages of, 14-5244-46

Labor Day, observance of, 6-2094

Labor party, England

power, early 20th century, 7-2300

Labore et honore. Latin for "by labor and honor."

Laboring classes in England, 19th century,

7-2293-98

La Brabançonne, national song of Belgium,

10-3612

Labrador

conditions of living, 7-2497-98

Dr. Grenfell's mission to, 7-2497-2500

early explorations, Cabot and Cortereal,

2-677

Pictures, 7-2494-95, 2499

Labrador Current. A cold current moving southward from arctic regions following the western side of Davis Strait. Off the southeast part of Newfoundland it comes into contact with the Gulf Stream and sets up an eastward drift, the Gulf Stream drift. Causes fogs.

Labrador Peninsula, or Ungava, description,

7-2557-58

Labrador tea, shrub

description, 19-6938

leaves used for beverage, 13-4783

Laburnum trees, account, 12-4386, 4390

Picture, tree, flower and leaf, 12-4390

Labyrinth, in ancient Crete, 2-448-49; 9-3354

Labyrinthodonts, in Carboniferous period, 4-1296

Lac, obtained from banyan tree, 9-3261

Lac insect, 17-6078

Laccadive Islands, 9-3184

Lace, Jacquard loom for making, 19-7204-05

Lace-bark tree, 8-2788, 2790

Lacewing fly, destroys plant-lice, 18-6730

Picture (in color), facing 18-6720

Lachesis, one of the three Fates, 9-3228

Lacombe, Albert, missionary, 15-5375-77

La Condamine, Charles Marie de, sent first

samples of rubber to Europe, 4-1405

Lacquer ware. Decorative articles made of wood, coated with Japanese or other Oriental lacquer in a varnish generally made with resin as the base. About fifteen coats of varnish are applied to make this very durable coat.

how to apply, 9-3120

Lacrosse, game, rules for, 14-5115-16

Lacteals, vessels for carrying fat, 6-2086

Lactic acid, in milk, 17-6175

Lactose, sugar from milk, 10-2416; 17-6175

Lacuna. Gap, or missing part, especially in old manuscripts. The word comes from the Latin *lacus*, lake.

Ladies' tresses, see Lady's tresses

Ladoga, Lake, size, 7-2484

Ladon, a Greek river, and Syrinx and Pan,

9-3236

Ladrone, or Mariana, Islands. Volcanic island group in the northwest Pacific. Discovered by Magellan in 1521, they were sold by Spain to Germany in 1899, and in 1920 passed under Japanese mandate. Guam belongs to the United States.

See also Mariana Islands.

Ladybirds, insects

feed on scale insects, 17-6078; 18-6730-31

life history, with pictures, 18-6728

Poem about. Ladybird, Fly (German folksong), 7-2367

GENERAL INDEX

- Ladybugs**, *see* Ladybirds
- Lady's comb**, flower
Picture (in color), 15-5400
- Lady's fingers**, flower
Picture (in color), 14-4993
- Lady's slipper**, flower
 account of, 17-6282
 pink lady's slipper, note on, 15-5606
Pictures
 pink lady's slipper, 15-5606; 17-6282
 showy cypripedium, 17-6272
- Lady's tresses**, plant, 16-5732-33
Pictures, 16-5733
 autumn (in color), 14-4986
- Ladysmock**, flower, 17-6128
Picture, and note, 17-6122
- Lænnec, René Théophile Hyacinthe**
 invented stethoscope, 8-2724
- La Farge, John**, American painter, 9-3334, 3336
Picture, Muse of Painting (graveure), 10-3462
- Lafayette, Marie Jean Paul Yves Roch Gilbert du Motier, Marquis de** (1757-1834). Distinguished French officer who upon the outbreak of the American Revolution arrived from France and was attached to the staff of General Washington. Wounded at Brandywine; retreated brilliantly from Barren Hill. Fought with Lee at Monmouth, and co-operated by land with French sea attack on Newport. In 1781 he operated against Arnold in Virginia, where Cornwallis pursued him. But Lafayette joined with Wayne and forced Cornwallis to retreat to Yorktown, where he surrendered. During French Revolutionary wars he perfected the organization of National Guard. After excesses of populace he sympathized with the king and had to fly to Flanders, where he was imprisoned by the Austrians. He took no part in public affairs under Napoleon, but was in French Chamber 1818-34. Revisited the United States in 1824 and was received with great enthusiasm.
 activities in French Revolution, 6-2128, 2130; 10-3566
 in America, 4-1168, 1172
Pictures, portraits, 4-1161; 6-2127
- Lafayette National Park**, Maine, 7-2291
Picture, 7-2285
- La Fontaine, Jean de**. Most famous French writer of fables; born, Château-Thierry, 1621; died, Paris, 1695.
 writings, 18-6712
See also Poetry Index for poems and notes
Picture, portrait, 18-6712
- La Fontaine, Sir Louis Hippolyte, Bart.**
Picture, statue by Allward, 14-5080
- Lagerlöf, Selma**, Swedish author, 19-7014
 School examination, story from Emperor of Portugallia, 13-4753
- Lagoon**. A sound, channel or lake near to or communicating with the sea.
- Lagos**, Nigeria, 9-3056
- La Guayra**. Port of Caracás, capital of Venezuela, trading in cotton, sugar, hides, coffee, cocoa and indigo.
- La Hogue, Battle of**. Sea-fight in 1692 between the combined fleet of 99 English and Dutch ships and 44 French ships under the Comte de Tourville. The French were preparing an expedition against England, but were severely defeated on their own coast.
- Lahore**. Capital and railway centre of the Punjab, India, with two cathedrals and splendid native buildings.
- Lake-dwellings**, in ancient Switzerland, 18-6000
Picture, early German, 11-3965
- Lake herring**, fish, 15-5635
- Lake lawyer**, name for hake, 16-5780
- Lake poets**, in England, 7-2353
- Lake Trasimenus**, battle of, 4-1196
- Lakes**
 * Great Lakes and the St. Lawrence, 6-1955-63
 account of, 7-2538-39
 in Devonian period, 4-1176
 made by glaciers, 1-158-59
 salty lakes, western U. S., 19-6841
See also names of lakes: as Torrens, Lake
Question about. What are the largest freshwater lakes in the world? 7-2484
- Lakh of -pees**. 100,000 Indian rupees, equivalent at the face value of the rupee to \$48,665. Lakh, or lac, is from the Sanskrit *laksha*, meaning "one hundred thousand."
- Laliberté, Alfred**, Canadian sculptor, 14-5078
Poem about. To Alfred Laliberté, by Isabel McCaw, 10-3483
Picture, statue, Le Défricheur, 14-5076
- L'Allegro**, poem by Milton, account of, 4-1236
 extract from, 1-327
- Lamartine, Alphonse Marie Louis**, French poet, 18-6717
- Lamb, Charles**, English writer
 as essay writer, 8-2867-68
See also Poetry Index, for poems and notes
Picture, portrait, 8-2865
- Lamb, Mary**, *see* Poetry Index, for poems and notes
- Lamb-kill**, shrub, 13-4776
- Lambs**
Poems about
 Mary Had a Little Lamb, 6-2247
 Pet Lamb, by William Wordsworth, 6-2031
 The Lamb, by William Blake, 2-606
Picture
 lamb with its mother, 4-1372
- Lambton, John George**, *see* Durham, 1st earl of
- Lamennais, Félicité Robert de**, French author, 18-6717
- Lammergeier**, bird, 10-3759
Picture (graveure), 10-3761
- Lamont, James**, arctic explorer, 13-4712
- Lamp chimney**, invention, 3-996
- Lamp shades**, paper, how to make, 18-6777
 parchment, how to make, 16-5890
- Lampman, Archibald**, Canadian poet, 14-5108
See also Poetry Index for poem and note
- Lamprey**. An eel-like order of aquatic vertebrates widely distributed in temperate regions in both fresh and salt water. They have large mouths with small teeth, a single nostril and seven gill-pouches on each side. Some are edible. The larger kind attach themselves to fish and tear off their flesh with their horny teeth.
- Lamps**
 electric, *see* Electric lamps
 oil, 3-996
- Lancaster, Joseph**, English educator, 14-5254
Picture, portrait, 14-5247
- Lancaster**, English faction, 5-1686
Picture, choosing a badge, 5-1681
- Land**
 as agent in producing wealth, 15-5359
 rent of, 17-6092-93
 United States government land and settlers, 9-3218
- Land birds of the Northern province**,
 * 13-4759-66, 4829-44
- Land League**, Ireland, 8-2937
- Land o' the Leal**, song, meaning of, 10-3610
- "Land of the morning calm,"** name for Korea, 2-561
- "Land of the rising sun,"** name for Japan, 2-562
- Land Question**, Irish, *see* Ireland—land question
- Lander, Richard**, African explorer
 found mouth of Niger, 2-467
- Landes**, definition, 6-2171
- Landlocked salmon**, *see* Sebago
- Landolphas**, plants, produce rubber, 8-2790
- Landor, Walter Savage**, poetic style, 12-4229
See also Poetry Index for poems and notes
Picture, portrait, 12-4227
- Landrails**, birds
Picture (in color), 9-3281
- Land's End**. Westernmost point of Great Britain, lying nine miles from Penzance, in Cornwall. From here to John o' Groats is usually considered the extreme length of the island. The vicinity is noted for its scenery.
- Landscape painting**, *see* Painting—landscape
- Landseer, Sir Edwin**, English artist
 made lions in Trafalgar Square, 12-4361
 paintings of, 6-2235
Pictures
 Newfoundland dog, 2-710
 wild cattle, 4-1258
- Landseer, Thomas**, engravings of brother's pictures, 6-2235
- Lane, Franklin K.**
 Makers of the flag (address), 19-7188
- Lanfranc**, archbishop of Canterbury, influence of, 8-2845
- Lanfranchi of Milan**, medical writings, 8-2725
- Lang, Andrew**, author, 11-3999
- Langland, William**, author of Vision of Piers Plowman, 1-305

GENERAL INDEX

- Langley, S. P.**, American scientist
attempted invention of airplane, 1-172-73
invented bolometer, 17-6080
Picture, early model of airplane, 1-173
- Langley, Walter**, British painter
Picture, cottage fireside, 11-3839
- Langmuir, Irving**, and radio inventions, 17-6368
and wireless telephony, 17-6248
- Langobards**, *see* Lombards
- Langton, Stephen**, archbishop of Canterbury
influence of, 8-2850
Picture, speaking for Magna Carta, 8-2850
- Language**, Universal, 3-877
- Languages**
Aryan, spoken by Hindus and Europeans, 8-2821
differences in sounds, 10-3560-61
origin of, 8-2871; 15-5515-16
statistics of, 3-877
See also Chinese language; English language, etc.
- Questions about*
How did men learn to talk? 15-5515-16
What language was usually spoken by Jesus Christ? 10-3444
Will all people ever speak the same language? 3-877
- Languedoc**, Old French province bordering the Gulf of Lyons. In ancient times it contained some of the largest Roman settlements in Gaul, notably at Narbonne and Nîmes, and it was the most cultured part of France up to the Albigensian Crusade. Toulouse, Aigues-Mortes, Montpellier and Carcassonne were among its towns.
- Lanier, Sidney**, American author, 13-4815-16
See also Poetry Index for poem and note
- Lansdowne, Lieut.-Commander**, American aviator
in command of the Shenandoah, 1-170
- Lansing**, Capital of the state of Michigan, 88 miles northwest of Detroit, it has varied manufactures, including agricultural implements, automobiles, gasoline engines, furniture, wagons, electric supplies, etc. Power is supplied from the Grand and Cedar rivers, which meet here.
- Lantern-flies**, 17-6072
Pictures, 17-6071
- Lanterns**
hanging, directions for making, 6-2263
magic, directions for making, 8-3018-22
paper, how to make, 18-6777
- Lacoon**, sculptural group, 12-4460
Picture, 12-4462
- Laodamia**, wife of Protesilaus, 8-2820
- Laon**, Historic city of northern France, having been the capital of the West Franks. Formerly a strong fortress, it has a fine Gothic cathedral and a bishop's palace.
Picture, cathedral of Notre Dame (gravure), 17-6167
- Lao-tsze**, founder of Taoism, 9-3088, 3090
Picture, in group, 9-3089
- La Paz**, capital of Bolivia
note and *picture*, 19-6974
- La Pérouse, Comte Jean de**, French navigator, rival of Captain Cook; born near Albi, 1741; lost at sea, 1788.
- Lapis-lazuli**, description, 19-7232
Picture (in color), facing 19-7225
- Laplace, Pierre Simon de**, French scientist
theory on origin of earth, 1-143
- Lapland**, inhabitants, 15-5304
Pictures, 5-1656; 8-2981; 15-5302
- La Plata**, Wide South American estuary on which Buenos Aires and Montevideo stand. It forms part of the boundary between Uruguay and Argentina. 145 miles broad at its mouth, it receives the Paraná and Uruguay rivers and drains 1,400,000 square miles. 200 miles.
- La Plata, Viceroyalty of**, 19-7033-34
- Lapsus linguae**, Latin phrase meaning "slip of the tongue." A similar phrase is *lapsus calami*, slip of the pen.
- Lapwings**, birds
Pictures, 11-4011 (in color), 8-2900
- Larboard**, meaning of term, 14-5003
- Larch trees**, 11-4020
description and *picture*, 11-4104
Picture, fruit (in color), 11-4022
- Larchmont**, ship, wreck of, 14-5120-21
- Larcom, Lucy**, *see* Poetry Index for poem and note
- Lares and Penates**, gods of the hearth, 9-3234
- Larks**
* Larks and their friends, 9-3133-40
crested, account of, 9-3134
fable about by Aesop
The lark and her young ones, 15-5538
horned, account of, 13-4882
in western North America, 14-5137
meadow lark not a true lark, 13-4889
short-toed, account of, 9-3134
Picture, 9-3133
- Larkspurs (delphiniums)**, belong to buttercup family, 19-7170
description, 18-6662
Picture, hybrid delphinium (gravure), 19-7170
- La Rochelle**, France, note and *picture*, 10-3575
- Larynx**, called voice-box
* Voice-box and its uses, 10-3555-61
man's and woman's compared, 4-1230
purpose of, 4-1328
Pictures, with note, 10-3555
- La Salle, Robert Cavalier, Sieur de**
explorations, 1-248, 250
visited site of Chicago, 19-7105
Pictures
portrait, 1-245
searching for Mississippi River, 2-676
- Lass of Richmond Hill**, song, origin of, 10-3609
- Lassen Peak**, volcano, note and *picture*, 7-2289
- Lassen Volcanic National Park**, 7-2288, 2290
- Lasso**, how to make and use, 6-2260
- Last of the Mohicans**, by Cooper, quotations and summary, * 1-267-78
- Last Supper**, by Leonardo da Vinci, 3-828
Picture, 3-830
- Latex**, juice of rubber tree, 4-1409
- Latham, Hubert**, aviator, 1-174
Picture, airplane, 1-175
- Lathe**, copying lathe invented by Blanchard, 19-7214
- Latin Kingdom of the Crusaders**, 7-2586-89
- Latin language**, spread of, 10-3546, 3548
- Latin literature**, *see* Roman literature
- Latins**, tribe of Italy, settlement, 4-1191
- Latitude**, geographical, explanation, 1-19
degree of, exact measurement by Picard, 1-283
- La Tour, Quentin de**, French artist, 5-1881-82
- Latvia**, account of, 18-6461
* description, 16-5860
map, 13-4685
- Laud, William**, archbishop, and Earl of Strafford 11-3844
- Laudonnière, René de**, A French navigator of the 16th century, who with Ribault founded a colony of French Huguenots near the St. John's River, Florida, between 1562 and 1565.
- Laughing jackass**, kind of kingfisher, 9-3374
- Laughter**
Questions about
Why do I laugh and cry? 1-73-74
Why do we not laugh when we tickle ourselves? 1-7378
- Laura**, beloved of Petrarch, 17-6152
- Laurel**, flower
mountain laurel, 13-4774, 4776
name given to rhododendron, 13-4783
swamp laurel, description, 19-6938
Pictures
fruit (in color), 11-4024
mountain laurel, 13-4774
- Laurens, Jean Paul**, French painter, 8-2868
- Laurentian Plateau**, description, 1-110, 112
oldest land in world, 3-773, 775
Picture, 3-775
- Laurentic**, ship, torpedoed in 1917
treasure recovered from, 12-4186
- Laurier, Sir Wilfrid**, premier of Canada, 4-1491
- Lausanne**, Swiss city near Lake Geneva, capital of the canton of Vaud; famous as an educational centre. It has a university and a fine Gothic cathedral.
- Lausanne conference**, 1923, 18-6459
- Laut, Agnes C.**, Canadian author, 15-5369
- Lava**, Fluid rock which flows from a crack in the earth's surface or from a volcano. It is mineral matter dissolved in mineral matter, solution taking place at a high temperature. If it cools rapidly, it produces glass, as obsidian; if slowly, a crystalline rock. If it is full of expanded gases, it produces a cellular texture, as in pumice. Lava flows out in streams or may overflow in sheets

GENERAL INDEX

Laval University, Canada, 8-2950
Lavatera. *Picture*, flower (gravure), 19-7180
Lavender, flower
Picture, sea lavender (in color), 14-4982
Lavery, John, British painter, 8-2859
Lavoisier, Antoine. French scientist, chief founder of modern chemistry; born, Paris, 1743; guillotined there, 1794.
Law
 * Law—the power supreme, 13-4811
 * Laws that we should know, 14-4913
 Babylonian, code of Hammurabi, 2-652
 civil law, 13-4813
 common law, 13-4811-13; 14-4913
 criminal law, 13-4813
 habeas corpus, meaning of, 18-6553
 ignorance no excuse, 14-4913-14
 statute law, 13-4811; 14-4913
 to protect children, 14-4915-16
 wrongful acts, 14-4914-15
See also United States—Congress
Question about. What does the law mean by an act of God? 13-4595
Lawrence, St. Deacon to St. Sixtus who, when commanded by Valerian to give up the treasure of the Church, gathered together the poor and cripples of Rome, saying: "These are the church's treasures." He was broiled to death over a slow fire about 258 A.D.
Lawrence, James, captain of the Chesapeake, 5-1704; 17-6330
Lawrence, Sir Thomas, English painter
 * life and work, 7-2335
 art of, 6-2112
 Pictures
 Portrait, 7-2327
 Sir Thomas Lawrence as a Boy, by Margaret Dicksee, 7-2329
 Boy with a Kid (gravure), 6-2119
 Lady Gower (gravure), 6-2114
 Mrs. Siddons (in color), 7-2339
 Portrait of Warren Hastings, 6-2109
 The Calmady Children, 9-3072
Lawrence, Perry's flagship, 17-6331
Laws, see Law
Lawson, Australian explorer, 3-862
Layard, Sir Austen Henry, English archaeologist
 Assyrian discoveries, 2-649, 654, 655
 finds rock crystal lens, 13-4669
Lazaretto. Hospital for the diseased poor, especially lepers; also a building or ship used for purposes of quarantine. The word is Italian.
lazar (Lazarus), meaning "poor man." The French form of the word is *lazarette*.
Laziness
Poem about. The Sluggard, by Isaac Watts, 2-606
Leacock, Stephen Butler, Canadian author, 15-5371
Picture, portrait, 15-5373
Lead (Pb). A soft grayish metal, fairly malleable. It does not occur as a pure metal, and its commonest form is galena (PbS, sulphid of lead). The United States is a great lead-producer. Canada also has great deposits of galena and other lead-ores.
 comes from uranium, 19-7246
 countries producing, 9-3210
 directions for casting paper weights, 3-1023
 Missouri mines, 17-6038, 6040
 not in lead pencils, 9-3354
 uses of, 9-3210
Leadership, economic value, 15-5358-59
Leads, for measuring water-depth, 12-4422
Leadville, Colorado, 18-6434
Leaf buds, see Buds
Leaf-cutter bee, 17-6227-28
Leaf insects, 17-6070
Picture, 17-6071
League of Nations
 aid to Austria, 17-6198; 18-6460
 and President Wilson, 8-2674
League of Princes, and Germany, 11-4049
Leaks, in boats, how to stop, 18-6645
Leaning Tower of Pisa, see Pisa
Leap-frog, game, 6-2164
Leap year, reason for, 1-238
Leaping-nole, how to use, 10-3769
Lear, Edward, see Poetry Index for poems and notes
Leather
 * history, sources, preparation and uses, 5-1549-58

Leather (continued)
 animal skins used, 5-1550-51
 chrome leather, 5-1550
 diminishing supply, 5-1551
 for shoes, 18-6445
 imitations of, 5-1551
 production in U. S., 9-3216
 Russia leather, 5-1550
 Pictures, 5-1549, 1552-58
Leather-jackets, larvae of crane-fly, 17-6419
Leather sucker, how to make, 3-902
Leavened bread, 1-371
Leavenworth prison barracks. Picture, 17-6060
Leaves of plants
 arranged to get most light, 1-334
 experiment to show starch manufacture, 2-616
 give off water vapor, 2-506
 of corn, structure, 5-1856
 of grasses, description, 10-3525, 3526
 of trees
 notes with pictures, 11-4097-4108; 12-4251-60, 4387-96
 shaking of, 15-5366
 structure and work, 2-614-16
 variations in seaside plants, 14-5157-58
 veins, 2-616
 withering, reason for, 2-510
Poem about. Leaves and the Wind, by George Cooper, 19-6990
Questions about
 Is a leaf of a plant waterproof? 7-2360
 What happens when a leaf falls from a tree? 13-4595
 Why do leaves change color in the autumn? 15-5520
 Why have leaves so many different shapes? 4-1231
 Picture, structure, 2-503
Lebanon. Syrian mountain range rising to over 10,000 feet. Anti-Lebanon runs parallel to it.
Question about. What are the cedars of Lebanon? 15-5361
Picture, cedars, 15-5363
Le Brun, Charles, French painter, 5-1876
Le Brun, Madame Vigée, French painter, 5-1882
Pictures
 Madame Le Brun and Daughter (gravure), 5-1880
 Portrait of Comte d'Espagne (gravure), 5-1878
Lecky, Sir William Edward, historian, 11-4002
Leclanché cell, description, 16-5672-73
 note and picture, 16-5664
Lee, Charles (1731-82). British-American soldier. He served in British army, but came to America in 1773, and was later appointed major-general by Congress. After service in the South he was in command under Washington, and was captured by the British. Long afterward it was discovered that he was willing to betray his adopted country.
 in New Jersey, 4-1168
Lee, Robert E., general
 sketch of life, 6-2088-90
 birthday a holiday in South, 6-2088
 Picture, portrait, with note, 7-2431
See also United States—history—Civil War
Lee, Sergeant, and first submarine, 1-197
Lee, Sir Sidney. English author and biographer; born, London, 1859; died, 1926.
Lee-Hamilton, Eugene, see Poetry Index for poem and note
Leech, worm. *Picture*, 19-7145
Leeds. Chief centre of the Yorkshire cloth industry, on the Aire. An important railway and commercial centre, it has large leather and engineering industries and many other manufactures, though the woolen trade is much the most important. There are a university and a Roman Catholic cathedral, while within the city bounds is Kirkstall Abbey.
Leek, emblem of Wales, origin, 17-6180-81
Leeuwenhoek, Anton van, discoveries with microscope, 13-4670
Leeward, meaning of term, 14-5003
Leeward Islands, 9-3191
Lefroy, Maxwell, and destruction of blow-files, 18-6724
Left-handedness, 9-3059-60
Leg, bones of 5-1674-77
Legaré, James Matthew, see Poetry Index for poem and note

GENERAL INDEX

- Legend of Montrose**, by Scott, note on, 11-4071
Legends, see Myths and legends
Leghorn. Chief seaport of Tuscany, Italy, with a good harbor and large shipbuilding yards. It has a 17th-century cathedral with a façade designed by Inigo Jones, and trades in coral and straw hats.
Leghorn, breed of poultry, 12-4492
Picture (in color) facing 12-4492
Legislation, see Law
Leguminous Family of plants as forage plants, 7-2410-11
 definition of, 7-2613
Le Havre, French port, 11-3821
Leibnitz, Gottfried Wilhelm von, German philosopher, 2-589
Picture, portrait, 2-589
Leicester, Earl of, Robert Dudley
Picture, portrait (gravure), 5-1821
Leif the Lucky (Leif Ericson), explorations of, 1-241; 15-5292
Leighton, E. Blair, artist
Picture, Lady Godiva Pleading with her Husband, 17-6295
Leighton, Frederick, lord, English artist as painter, 6-2236
 as sculptor, 13-4856
Pictures
 Ancient Britons trading with the Phœnicians, 4-1431
 statue, The Sluggard, 13-4855
Leinster. Eastern province of Ireland, comprising 12 counties; area, 7,624 square miles.
Leipzig. Commercial city in Saxony, Germany, famous for its great printing and book trades, its industrial fairs, its university, and its piano-forte, paper, chemical and scientific-instrument manufactures.
Picture, Law Courts (gravure), 12-4179
Leipzig, Battle of. Fought between Napoleon and the allied Russians, Austrians, Prussians and Swedes in 1813, and known as the Battle of the Nations. Blücher with 60,000, Schwarzenberg with 240,000, and Bernadotte with 135,000 men, pressed Napoleon so hard that his Saxon allies went over to the enemy, and he brought back only a part of his 300,000 men.
 See also 10-3572
Leisure
Poem about. Leisure, by H. W. Davies, 9-3111
Leiter's tube. Coil of flexible tube which is placed around a body or limb, and through which hot or cold water is poured to raise or lower the temperature.
Leitrim. County of Connaught, Ireland; area, 613 square miles; capital, Carrick-on-Shannon.
Leelan Stanford Junior University, see Stanford University
Lely, Sir Peter, Westphalian painter
 place in British art, 6-2000
Pictures
 Portrait of Comtesse de Grammont, 6-2003
 Portrait of Duchess of Cleveland, 6-2003
 Portrait of Mary Davis, 6-2002
 Portrait of Nell Gwyn, 6-2003
Le Mans, France
 cathedral, 17-6159
Picture, cathedral of St. Julien (gravure), 17-6168
Le May, Pamphile, French Canadian poet, 14-5110
Lemberg. Chief city of Galicia, Poland, with Roman Catholic, Greek and Armenian cathedrals, description, 13-4688, 4690
Picture, cathedral, 13-4681
Lemerier, Jacques, French architect, 18-6496
Leemmings, animals, 3-1133
Picture, 3-1131
Lemons, account of, 6-2058, 2060
Pictures, 6-2059, 2061
 cross section, 2-507
Lemurs, first of monkey tribe, 7-2416
 use hands, 8-2841
Picture, 1-212
Lena. Great Siberian river rising in the Baikal Mountains and flowing into the Arctic. 3,000 miles.
Le Nain brothers, French painters, 5-1874
Pictures
 Peasants at Supper (gravure), 5-1878
 Piper among the Hills, 5-1875
Lenbach, Franz von, German painter, 8-2852-53
Picture, portrait of Bismarck (gravure), 8-2863
Lenepveu, Jules, artist
Pictures (gravure)
 Joan at the Coronation at Rheims, 16-5816
 Joan of Arc Welcomed by the Populace, 16-5816
 Last Hour of Joan, 16-5816
L'Enfant, Pierre Charles, grave of, 5-1542
 plan for Washington, D. C., 5-1533
Leningrad, Russia, 16-5856
Picture, cathedral (gravure), 16-5722
Lenoir, Joseph, Canadian poet, 14-5104
Lens. One of the chief coal-mining centres of northern France, though much damage was done to the mines in the war.
Lens, of the eye, 10-3685-86
Lenses, how made, 13-4670
 note and diagram, 2-462
 use for magnifying, 13-4669
Lent lily, name for daffodil, 17-6124
Lentils, account of, 7-2614
Leon, ancient kingdom of Spain, 14-5040
Leon. Largest city of Nicaragua, with a cathedral and a university and a brisk trade in agricultural produce, timber and minerals.
Leonardo da Vinci, see Vinci, Leonardo da
Leoncavallo, Ruggero, Italian musical composer, 19-6925
Picture, portrait, 19-6912
Leonidas, king of Sparta
 at Thermopylae, 2-103-04; 3-916, 1078
Leonids, shower of meteors, 10-3672
Leopardi, Alessandro, Venetian sculptor, 4-1450-60
Picture, pedestal of Colleoni monument, 4-1468
Leopards, description, 2-494
 clouded, 2-501
Pictures, (gravure), 2-498-99
Leopold, archduke of Austria
 in Third Crusade, 7-3588
Leopold II, king of Belgium
 and Congo Free State, 18-6812
Lepanto, Battle of, 13-4800, 4803
Lepers, see Leprosy
Lepidodendrons, ancient plants, 4-1296
 in Devonian period, 4-1176
Leprohon, Mrs. R. E. Mullins, Canadian author, 14-5106
Leprosy, disease, 7-2321
 Father Damien and the lepers, 7-2320-22
Lermontov, Michael, Russian author, 19-6908
Lescot, Pierre, French architect, 18-6495-96
Lèse majesté. French for an offense of disrespect constituting a mild form of treason; literally, "injured majesty."
Leslie, Shane, see Poetry Index for poem and note
Les Misérables, by Victor Hugo
 * quotations and summary, 11-3861-72
Lesseps, Viscount Ferdinand de. French diplomatist and engineer; built the Suez Canal; born, Versailles, 1805; died, near Paris, 1894.
 and Panama Canal, 1-364
 and Suez Canal, 13-4786
Lesser Bear, constellation
 in mythology, 9-3233
Lessing, Gotthold Ephraim, German dramatist, 17-6268-70
Picture, portrait, 17-6269
Le Sueur, Eustache, French painter, 5-1876
Lethe, sleep of forgetfulness, 9-3238
Letter-boxes
Question about. Why does the slot of a letter-box slant upward? 18-6556
Lettering, directions for, 15-5596-97
Letters
 * How our letters come to us, 8-2653-62
 addressing needs care, 8-2654, 2656
 delivery of, see Postal service
 first use of postage stamps, 6-2251
Poem about. How to Write a Letter, by Mrs. Turner, 14-4955
Question about. Why can we not send a letter without a stamp on it? 9-3355
Letters of marque. Commissions to private persons to prey on shipping of an enemy in war, abolished at Congress of Paris, 1856.
Letton, John, early printer, 9-3386
Lettre de cachet. In France a sealed letter directing the arrest and imprisonment of a person without trial; abolished by the Revolution.
Lettuce
 account of, 7-2616
 miner's, see Miners' lettuce

GENERAL INDEX

Lettuce (continued)

- Pictures*, 7-2620
 acrid lettuce (in color), 13-4878
 ivy-leaved (in color), 14-4988
 wild lettuce, 9-3396
Leucothoe, Catesby's, 19-7089
Picture, 19-7081
Leutze, Emanuel, American painter, 9-3333
Pictures
 Milton and Cromwell, 12-4434
 Washington crossing the Delaware, 4-1169
Levant. Name applied to the eastern shores of the Mediterranean, especially to those of Turkey, Syria and Egypt.
Leveling, how spirit level works, 18-6553
Leven, Loch. Scottish lake containing several beautiful islands. On one of these, Castle Island, are the ruins of the castle in which Mary Queen of Scots was imprisoned.
Le Verrier, Urbain Jean Joseph, French astronomer
 and Mercury, 9-3290
 discovery of planet Neptune, 10-3414
Leviathan, ship, description, 12-4428
Picture, 12-4414
Levulose, sugar from fruit, 10-3416
Lewes, Battle of, 5-1572
Lewis, Matthew Gregory, *see* Poetry Index for poem and note
Lewis, Meriwether, *see* Lewis and Clark expedition
Lewis, Sinclair, novelist, 14-5012
Lewis and Clark expedition, 5-1703; 18-6426
Lewis Castle, England. *Picture*, 7-2297
Lewis Island, Hebrides, of volcanic origin, 7-2313
Lexington, Battle of, 4-1163
Picture, with note, 18-6834
Leyden. Beautiful old Dutch city, famous for its defense against the Spaniards, 1573-74. It has a celebrated university and a fine picture gallery, and manufactures textiles.
Picture, 15-5561
Leyden jar, invention of, 4-1246; 16-5666-70
Lhasa, Tibet, note and picture, 18-6587
Lhermitte, Léon Augustin, French painter, 7-2372
Picture, *Payino* the Reapers, 9-3076
Liberator, news paper, published by Garrison, 11-3939
Liberia. West African Negro republic; area, 40,000 square miles; capital, Monrovia. Founded by the American Colonization Society in 1822 for the resettlement of freed slaves, it was recognized as independent in 1847. Palm kernels and oil, piassava, coffee, cocoa, ivory and kola nuts are exported.
 location, 18-6811
Liberté, Egalité, Fraternité. French for "Liberty, Equality, Fraternity"; the motto of the French Republic, adopted as a motto by the Revolutionists in 1789.
Liberty
 * Defenders of liberty, 13-4583-91
 and English Romantic poets, 7-2493
 English struggle for, against Stuarts, 6-1974-78
 growth in England, 19th century, 7-2298
 growth in Europe, 19th century, 11-3668
Poem about. Present Crisis, by J. R. Lowell, 7-2525
Liberty Bell. Famous bell in Independence Hall, Philadelphia. The bell was ordered from England by the Pennsylvania General Assembly in 1751 and arrived in 1752, but cracked before it was hung. It was recast twice in Philadelphia, and hung. When the Declaration of Independence was formally read to the people, July 8, 1776, the bell was rung both before and after. It cracked while tolling for the funeral of Chief Justice Marshall, fifty-nine years afterward. The poem on page 5648 is inaccurate historically.
Poem about. Independence Bell, 15-5648
Pictures, 15-5648; 18-6831
Libraries
 children's, 15-5624, 5628
 first circulating one in America, 12-4449
 in ancient Assyria, 2-658; 18-6872
 New York Public Library, 17-6218
 traveling libraries in Labrador, 7-2500
Pictures
 children's room, 15-5627
 New York Public Library, 17-6213

- Library of Congress**, 5-1534, 1536-37
Pictures, 5-1537, 1543
Libya, Italian name for Tripoli, 18-6811
 old name for Tunisia, 18-6806
Libyans, people of Africa
 first used horse, 6-2014
Picture, 3-817
Lichens
 "double plants," alga and fungus, 3-882;
 10-3723-24
 uses, 5-1628
Pictures, 10-3720
Lichfield. Ancient city of Staffordshire, with a splendid three-spired cathedral. Dr. Johnson was born here, his birthplace now being a museum.
 cathedral, 16-5969
Lichtenberger, André, French author
 Sad heart of a little Trotti (story), 14-4945
 "Licks," origin of name, 6-2190
Licorice, medicinal plant, 8-2913
Liddell, Alice, and Lewis Carroll, 9-3198
Lie, Jonas, Norwegian novelist, 19-7013
Picture, portrait, 19-7009
Lieb, Michael, *see* Munkácsy
Liebig, Justus von, Baron, German chemist, 2-592
Picture, portrait, 2-589
Liechtenstein. Principality on the Upper Rhine, between Switzerland and Austrian Vorarlberg; area, 65 square miles. It is the third from smallest sovereign state in Europe.
Liège. Belgian city on the Meuse, in a great coal-mining district. Besides woollens and leather, it has a great manufacture of iron and steel, the locomotive works at Seraing near by being especially important. Heroically resisted German advance in 1914 until overwhelmed by artillery fire and superior numbers.
Life
 * Life that fills the earth, 1-49-52
 * How life goes round and round, 1-117-21
 * First living things, 1-219-22
 * Very seat of life, 2-661-64
 * Alcohol, the enemy of life, 8-2681-84
 elements necessary for, 2-664
 first forms of, 1-117; 2-634; 3-881
 length of man's life increasing, 14-5218
 living things, how different from not living, 1-49-52
 lowest forms of, single cell, 2-661-64
 variety of, and interdependence, 1-91-92
See also Cells, Living
Question about. Is a stone alive? 17-6174
Life in the waters, * 15-5539-42
Life that fills the earth, * 1-49-52
Lifeboats
 heavy keel makes safer, 14-5179
 invention of, 19-7207
 self-righting, 17-6406
Question about. What special valve helps life boats to keep afloat? 5-1808
Lifebuoy, directions for using, 18-6639
Light
 * Light and what makes it, 16-5807-12
 * Where color comes from, 17-6079-82
 and quivering appearance from heat, 5-1751
 and the spectroscope, 11-3922
 as measure for distance of stars, 11-3784
 chemical action of, 10-3683
 effect on health, 4-1415
 effect on plants, 2-745
 experiments, 4-1475
 electric, *see* Electric lamps; Electric lighting
 electromagnetic theory, 17-6080-81
 experiment with, fairy fountain, 2-627
 intensity, law of, 10-3577; 17-6081
 medical effects, Finsen's discoveries, 15-5492
 penetration into sea, 11-3841
 radiation pressure, 16-5809-10
 reflected from clouds, 8-2924
 reflection, laws of, 17-6081-82
 refraction, *see* Refraction, of light
 * relation to color, 17-6079-82; 11-3804
 and color of sea, 6-2124
 necessary to bring out color, 8-2874
 some colors invisible to human eye, 10-3579
 relation to ether, *see* Light-wave theory
 relation to heat, 3-877; 12-4157-58
 relation to movement of electrons, 16-5808-09
 speed of, 10-3473-74; 16-5807
 for measure of distance of stars, 9-3033-34
See also Light-year

GENERAL INDEX

Light (continued)

- sun's light pressure on the earth, 10-3665
- use in our bodies, 6-2186
- wave theory of, 16-5807-08
- ripples in ether, 13-4666
- travels through ether, 12-4156-58
- wave of ether, not air, 11-3977
- waves compared with sound waves, 16-5811-12
- See also Lighting; Spectrum
- For list of main articles, see 20-7619-26
- Questions about*
- Do we see things in the distance, or the light that comes from them? 2-458
- Does a light-ray go through glass? 11-3977
- Does light die away? 10-3577
- How do clouds stop sunlight? 4-1452
- How do we know the speed of light? 10-3473-74
- Is it darkest just before dawn? 12-4506
- What is meant by phosphorescent light? 2-586
- Why do dark things look smaller than light things? 6-2112
- Why do metals let light through when beaten thin? 5-1759
- Why do some colors change in artificial light? 7-2369
- Why does the air not stop the light of the sun? 15-5620
- Why does steam put a light out? 11-3979
- Why is it dark at night? 1-78
- Why is the world light when the sun is behind clouds? 16-5744

Light and shade

- how rendered in pictures, 5-1711
- in Correggio's pictures, 3-1108
- in Rembrandt's pictures, 5-1769, 1711

Light in painting, see Painting, light

Light-year, distance traveled by light in a year

- explanation, with picture, 11-3325
- length in miles, 11-4038

Lighthall, William Dow, Canadian author,

- 14-5108

Lighthouse, Alexandria, 3-821; 7-2694

- Picture* (graveure), 7-2698

Lighthouses

- Question about* Can a lighthouse manage itself? 10-3476

Pictures

- at Platte Fougere, 10-3476

- on Farne Islands, 3-1931

Lighting

- * electricity, 16-5827-44
- * history, 3-2388-96
- * gas for lighting, how made, 2-625-45
- by petroleum products, 13-4540
- early forms, 2-635
- how man learned to strike a light, 1-309
- * *Pictures*, 3-295

Lightning

- Benjamin Franklin's experiments with, 4-1248
- cause of, 8-2924
- heat lightning explained, 8-2924
- in winter, 8-2924
- speed of, compared to thunder, 2-357
- Questions about*

- What is the force in lightning that kills a man? 15-5415

- Where does the lightning go when it reaches the ground? 16-5744

- Why does lightning strike some things and not others? 6-2125

Lightning, clipper ship, 11-3920

Lightning conductor

- invented by Benjamin Franklin, 4-1248

- principles of, 6-2127, 16-5745

Lignite, coal, 3-788

- its probable origin, 8-3012

Ligny, Battle of, 6-2208

Lilienthal, Otto, German pioneer aviator, 1-172

Lilies

- Animals*, description, 19-7089-90
- cultivated, notes on, 19-7108
- varieties and description, 19-7171-72

- leaves, name, White Lily, 17-6124

- Martha's vine Martha's lily

- peaks or mountains, see Evening star

- seed, see Seed lilies

- statue, see Saint lilies

- Picture about* The White Lily, by George MacDonald, 17-6124

Lilies (continued)

Pictures

- auratum and Madonna-lilies (graveure), 19-7175

- garden lilies, 19-7168

- Turk's-cap lily (graveure), 19-7177

- Liliuokalani, queen of Hawaii, 10-3586

- Lille, Centre of the French textile industries near the Belgian frontier. There are linen, cotton, thread, damask, cloth and table manufactures, besides others of tobacco, paper, sugar and machinery.

- description, 11-3818

- Lilliput, satirical name for England, 3-397

- Lily-of-the-valley, 19-7172

- Pictures* (graveure) 19-7178; (in color), 14-4987

- Lima, Capital and largest city of Peru, seven miles from its port, Callao. Founded in 1535 by Pizarro, it has a fine cathedral and the oldest university in the western hemisphere; manufactures include textiles, pottery, paper, soap, dye-stuffs and tobacco.

- cathedral, note and picture, 19-6974

- centre of Spanish rule of South America,

- 19-6864

Limbs, in animals, development of, 1-259

Lime

- children need, in food, 6-2188

- in yolk of egg, 7-2569

- use in mortar, 7-2305

- Lime, fruit, use on ships, 6-2058, 2060

- Limerick, Capital of County Limerick, Munster, and third largest city of the Irish Free State. Standing where the Shannon becomes navigable, it is a considerable port; dairy produce being the chief export; there is also trade in lace.

- siege of, 8-2935

- Picture* King John's castle, 8-2937

- Limericks, by Edward Lear, 2-499-51; 3-1912

- Limestone, description, 17-6386

- carves in, 4-1299

- origin, 3-1032

- used to separate iron from ore, 11-3772

- Limited liability, explanation, 15-5360

- Limners, name for portrait painters, 9-3325

- Limoges, Old capital of the former French province of Limousin, with a famous porcelain industry. Its Gothic cathedral, begun in the 13th century, was completed in 1851.

- Limpets, molluscs, 19-6891-92

- Pictures* 19-6882

- shells, 19-6887

- Limpopo, or Crocodile, South African river forming the northern border of the Transvaal, 1,900 miles.

- Linacre, Thomas, founded college for physicians in England, 8-2725

- Linchpin. Pin passed through the axle-end to prevent a wheel from working its way off.

- Lincoln, Abraham, president of U. S.

- * life, 3-1945-59

- life, outline of, 11-3953

- administration, 7-2369-42, 11-3941

- assassination by Booth, 7-2342

- birthday a holiday, 6-2688

- Gettysburg address, 3-1698

- see also United States—History—Civil War

- Poems about*

- Lincoln, the Man of the People, by Edwin Markham, 5-1645

- O Captain! My Captain! by Walt Whitman, 10-3736

- Pictures*, portrait, 3-1629

- portrait (graveure), 11-3946

- birthplace, with note, 18-6808

- home in Springfield, 11-3941

- Lincoln Memorial (graveure), 11-3942

- New Salem, Illinois, scenes in, 3-1648

- reading Emancipation Proclamation to Cabinet, 7-2426

- statue by French, 3-1918

- statue by Saint Gaudens, 14-4982

- Lincoln, Joseph Crosby, novelist, 14-5011

- Lincoln, Mrs. Mary Todd, wife of Abraham Lincoln, 2-395-96

- Picture*, portrait, 2-391

- Lincoln, Capital of the state of Nebraska, 51 miles southwest of Omaha. It is the centre of an important grain and milling trade. It is also a manufacturing city. The University of Nebraska is here.

- Picture* Capital (graveure), 18-6887

- Lincoln, England, cathedral, 16-5970

GENERAL INDEX

- Lincoln Memorial**, Washington, D. C., 5-1542
Picture, 5-1544
- Lind, Jenny**, Swedish singer; born, Stockholm, 1820; died, near Malvern, England, 1887. Made famous tour of America under management of P. T. Barnum.
- Lindbergh, Colonel Charles A.**, 1-180-81
Picture, with plane (gravure), 1-frontis.
- Linden trees**
 description and pictures, 11-4103
 uses, 12-4378
- Lindsay, Lady Anne (Anne Barnard)**, author of *Auld Robin Gray*, 10-3607, 3609-10
- Line**, in drawing, 5-1710-11
- Linen**
 * How we get linen, 9-3317-22
 countries producing, 9-3216
 how to test, 5-1774-75
Pictures
 * processes in linen-making, 9-3320-23
 samples of old linen, 9-3319
- Ling**, fish, name for hake, 16-5780
- Ling**, flower. *Picture* (in color), 14-4989
- Lingard, John**, historian, 9-3205
- Links**, name for torches, 9-3353
- Linnæa borealis**, see *Twin flower*
- Linnæus, Carolus**, Swedish naturalist
 life and work, 2-589-90
 named bird of Paradise, 8-2894
 named cacao plant, 7-2536
 writings in Latin, 19-7010
Pictures
 portrait, 19-7009
 after a botanical ramble, 2-588
- Linne, Karl von**, see *Linnæus, Carolus*
- Linnell, John**, artist
Picture, Noonday Rest, 12-4503
- Linnets**, birds, 8-2973
Picture, nest and eggs, 8-2971
Picture (in color), 9-3132
- Linoleum**, how made, 5-1551
- Linotype machine**
 description, 3-1056, 1060-62
Pictures, 3-1062
- Linseed oil**, uses of, 8-2786
 made from flax seeds, 8-2680
- Lion of Lucerne**, monument to Swiss Guards, 3-888; 6-2132
- Lionel of Antwerp** (Duke of Clarence), in Ireland, 5-1683
- Lions**
 * description and characteristics, 2-493-94
 attacks on human beings, 2-494, 501
 fable about, by Æsop
 The fox and the lion, 6-1969
 sensitive to high-pitched notes, 18-6439
 story about, Lord of the lions, 2-494
 toy, how to make, 3-895
Pictures, 5-1582-83
 in native lair, 2-495
 museum specimen, 18-6621
Pictures (gravure) 2-497, 499-500
- Lippi, Fra Filippo**, Italian painter, 2-699
Picture, Madonna adoring the Child, 2-690
- Lips**, structure and uses, 6-1931
- Liquid compass**. One in which the card is submerged in a chamber filled with liquid—generally 35 parts of alcohol and 65 of distilled water, but sometimes oil.
- Liquidambar tree**, 12-4510, 4513
Picture, 12-4513
- Liquids**
 behavior of, 3-879; 15-5285-89
 boiling points of, 8-3014
 mixing easy if molecules similar, 11-3842
 movement of molecules, 12-4159
 pressure, experiment to show, 19-7084
Questions about
 Why does the tea run through a lump of sugar? 3-879
 Why does water find its own level? 4-1229
- Lisbon**. Capital and chief port of Portugal. Having been almost destroyed by the earthquake of 1755, the city is generally modern, with wide streets and fine squares; the monastery and church of Belem are a splendid monument to the seamen of the nation. Textiles, jewelry, hardware, soap and leather are manufactured.
 description, 14-5188
Pictures, 14-5189
 Praca de Commercio, 14-5183
 public garden, 14-5186
- Lisle, Rouget de**, see *Rouget de Lisle*
- Lister, Joseph**, lord, English surgeon, 15-5483-85
Pictures
 portrait, 15-5485
 portrait, with parents, 15-5618
- Liszt, Franz**, Hungarian musical composer and pianist, 19-7150-51
 * life and work, 19-6923
Picture, portrait, 19-6912
- Litchi**, tree
Picture, fruit (in color), 8-2000
- Literary Garland**, Canadian publication, 14-5105-06
- Literature**
 value and beauty of, 1-79-81
 See also American literature; Arabian literature; Canadian literature; Greek literature; Oriental literature; Roman literature, etc.
- Lithium**, specific gravity of, 14-5038
- Lithuania**
 * history and description, 16-5860
 account of, 18-6461
 adopted Christianity, 13-4680
 map, 13-4685
- Litmus paper**, from lichens, 5-1628
- Little, Arthur**, American architect, 18-6684
- Little Claus and Big Claus** (story), 2-755-56
- Little Elk Lake**
 real source of Mississippi, 16-5653
- Little Entente**, in Europe, 17-6344
- Little Falls**, N. Y.
Picture, locks on canal, 13-4887
- Little Fox River**, Canada. *Picture*, 1-109
- Little many-legs**, * 16-6011-20
- Little Mothers' League**, N. Y. city, 15-5622
- Little poor man of Assisi**, * 6-1991-98
- Little red elephant**, flower, description, 18-6664
- Little Rock**. Capital of Arkansas, built on a rocky bluff 50 feet above the Arkansas River, here spanned by four bridges. This city has large wholesale interests and trade by river and rail in cotton, lumber, and bauxite ore. It manufactures cotton gins and presses, cotton, twine, furniture, brick and tile.
Picture, Capitol, 14-4897
- Live oaks**, 12-4246; 13-4638
- Liver**, use in digestion, 6-2086
- Liverleaf**, see *Hepaticas*
- Livermore, Mrs. Mary**, life and work, 14-5276
- Liverpool**. Port of Lancashire, second largest in England. It has about 27 miles of quays along the Mersey, and over 400 acres of docks; its trade, with America especially, being enormous. Vast quantities of cotton, timber, sugar, cereals, fruit, cattle and tobacco are imported; the manufactured goods of Lancashire, Yorkshire and the Midlands are exported in return. Liners ply to all parts of the world, and there are many manufactures. Liverpool has a university and a modern cathedral, and covers about 33 square miles.
 architecture, 18-6492
 effect of British Canal, 13-4786
Picture, cathedral, 18-6502
- Liverwort (hepatica)**, flower, see *Hepaticas*
- Liverworts**, plants, cryptogams, 3-882; 10-3724
Pictures, 10-3720
- Lives of the poets**, by Samuel Johnson, 5-1867, 1870
- Livesay, Mrs. Florence Randal**, Canadian author, 14-5110
- Living fossils**, * 7-2393-2400
- Livingstone, David**, African explorer and missionary
 * life and explorations, 2-468-70
 encounter with lion, 2-501
Picture, Livingstone's last journey, 2-464
- Livy**, Roman historian, 16-5912
Picture, portrait, 16-5907
- Lizard, The**. Southernmost cape of Great Britain, at the tip of the Lizard peninsula of Cornwall.
- Lizards**, account of, 14-5230-34
Pictures, 14-5231, 5233
- Lizard's tail**, plant, 19-7088
Picture, 19-7091
- Llamas**, animals, 5-1600
Picture (gravure), 5-1604
- Llanos**, definition, 6-2171
- Llewelyn**, Welsh prince
 and his dog, Gelert, 5-1693
- Llewelyn**, last Welsh prince
 crown hung in Westminster Abbey, 5-1680

GENERAL INDEX

- Load-line** on a ship, 14-5003
Picture, 14-5003
- Lobsters**
 account of, 16-5951-55
Question about. Why do lobsters turn red in boiling? 16-5846
Pictures, 1-257; 16-5951
- Local government**, taxes, 13-4556
- Local option**. System by which a district is given power to decide what course shall be taken in its area on a particular question. The term is usually applied to the sale of intoxicants, local option having been adopted in Canada, Australia, Scotland and elsewhere with varying results. In the United States it has been superseded by Prohibition.
- Locard (or Lockhart), Sir Simon**, and Bruce's heart, 12-4210
- Lochner, Stephen**, German painter, 4-1343-44
Picture, Adoration of the Wise Men, 4-1343
- Locke, David Ross**, American author, 13-4816
- Locke, George H.**, Canadian author, 15-5374
- Locke, John**. Most famous English philosopher of his day; born, Wrington, Somerset, 1632; died, High Laver, Essex, 1704.
study of the mind, 11-4066
- Lockout**, definition, 17-6094
- Lockport, N. Y.**
Picture, locks on canal, 13-4885
- Locks**
 * How a lock is made, 6-2021-26
Pictures, with notes, 6-2023-26
- Locks of canals**
 * explanation, 13-4785-86
 Erie Canal, 13-4885, 4887, 4888
 Panama Canal, 1-362-66
Pictures, 13-4785, 4787, 4789-90
 Little Falls, N. Y., 13-4887
 Lockport, N. Y., 13-4885
 locks of Panama Canal, 1-365, 368
 on Rideau River, Ottawa, 5-1832
- Locksmith, of Middle Ages**, 6-2022
- Lockyer, Sir Norman**. English astronomer; born, Rugby, 1836; died, Sidmouth, 1920.
 invented astronomical instrument, 9-3178
 propounded meteoric hypothesis, 1-286
Picture, portrait, 1-281
- Loco weeds**, description, 18-6664
- Locomotives**
 earliest locomotive in England, 5-1612
 early ones in United States, 5-1618
 electric, 2-410; 16-5895
 George Stephenson and, 5-1611-18
 machinery, explanation, 2-406-07
See also Steam engines
Question about. Why does a railway engine puff? 15-5366
Pictures, 2-405-09, 411, 418
 different modern types, 2-416-17
 early types, 5-1610-11, 1615, 1617
 electric locomotive, 16-5797
 working parts (in color), 2-406-07
- Locust trees**
 account of, 12-4386; 13-4780
 honey-locust, 12-4508
Pictures
 flower, with note, 13-4774
 tree, flower and leaf, 12-4381
- Locusts**, insects, account of, 17-6068, 6070
 eggs eaten by fly, 17-6423
 plague in South Africa, 18-6723
 profitable uses of, 18-6723
Pictures, 18-6733
 migratory locust (in color) facing 18-6720
 swarm in Algeria, 18-6721
- Lodestone**, natural magnet, 16-5797
 power of attraction, 4-1243
- Lodge, Sir Oliver**. English scientist, a pioneer of electricity and wireless telegraphy; born, Penkhull, Staffordshire, 1851.
Picture, portrait, 17-6235
- Lodge, Thomas**, English dramatist, 2-721
- Lodore, Falls of**. Series of cascades at the upper end of Lake Derwentwater, Cumberland, England.
- Lodz**. Second largest Polish city, with great textile manufactures.
- Lofoten Islands**. Norwegian island group with a famous cod fishery. Between two of the southernmost is the strong current known as the Maelstrom.
- Log cabins**, homes of American pioneers, 5-1658
- Logan, John A.**, general in Civil War
 established Memorial Day, 6-2092
- Logan, John E.**, *see* Poetry Index for poem and note
- Logan Sea**, prehistoric, in America, 5-1545
- Loganberries**. *Picture*, 6-2061
- Logging**, *see* Lumber and lumbering
- Logwood**, account of, 9-3153-54
Picture, leaf and flower (in color), 8-2998
- Lohengrin**, story of, 8-2957-60
- Loire**, French river, 11-3816
- Lombardi**, family of Venetian sculptors, 4-1459; 17-6311
- Lombardo, Pietro**, Venetian sculptor and architect, 4-1459; 17-6311
- Lombards**
 Pepin took land from, 11-3960
 settled in Italy, 11-3960; 12-4407
- Lombardy poplars**, *see* Poplar trees
- Lomond, Loch**. Largest and one of the most beautiful Scottish lakes, lying between Dumbartonshire and Stirlingshire. 27 square miles in extent, it is 23 miles long and 5 miles broad, and is dominated by Ben Lomond. 3,200 feet.
- Lomonosov, Michael**, Russian author, 19-6906
- London, England**
 * Great builders of London, 12-4353-61
 churches
 St. Bartholomew, 16-5964
 Temple Church, 16-5966
See also Cathedrals, English
 gas-light first used, 3-992-93
 Great Fire, 1666, 6-1980; 9-3158; 12-4356
 John Evelyn's description, 5-1730; 8-2819
 Great Plague, 6-1980
 Houses of Parliament, 12-4360-61
 National Gallery, 12-1361
 Roman London, 4-1322; 17-6283-84
 story about, Gog and Magog, 14-5194-95
 Tower of London, *see* Tower of London
 Trafalgar Square, 12-4361
Poems about
 Composed on Westminster Bridge, by William Wordsworth, 12-4350
 The Heavens in London Town, by Edward Shillito, 10-3737
Question about. How did London begin? 17-6283
 * *Pictures*, 12-4352-59
 Temple church (gravure), 16-5975
- London, Tower of**, *see* Tower of London
- London, Treaty of**, 1915
 provisions about Albania, 18-6463
- London Bridge**. Bridge across the Thames, London, England. Granite bridge of five arches, the central one having a span of 152 feet. Its total length is 928 feet, and its width 63 feet.
- London Company**, to colonize America, 2-544, 548
- London Pride**, plant, note and picture, 15-5603
- London Weekly News**, first English newspaper, 7-2483
- Londonderry**. Second largest city of Northern Ireland, capital of County Londonderry. Standing on the Foyle, it is surrounded by walls, and is famous for its resistance to James II. a 1689. Agricultural produce is exported and linen manufactured, and there are Protestant and Roman Catholic cathedrals.
 siege of, 8-2934
- Long, Crawford W.**, and early use of anesthetics, 8-2729
- Long dozen**. Thirteen. The term is employed in selling articles when an extra article is given with every dozen as an inducement to purchase. A variant term is "baker's dozen."
- Long Island**. An island forming the southeastern section of New York state. Area, 1,682 square miles; length, 118 miles; width, 15 to 23 miles. Brooklyn is one of the boroughs of Greater New York City. Many popular summer resorts are situated on Long Island. The many market gardens have caused Long Island to be nicknamed "New York's vegetable garden."
- Long Island, Battle of**. Battle of Revolution fought on present city of Brooklyn, Aug. 27, 1776. American army was badly defeated, and barely escaped capture.
 American army escapes, 4-1166
- Long moss**, 9-2268
Picture, 9-2260
- Longfellow, Henry Wadsworth**, 13-4726-27
See also Poetry Index, for poems and notes

GENERAL INDEX

Longfellow, Henry Wadsworth (continued)

- Portrait*, 13-4717
Birthplace, in Portland, Me., 12-4152
Cottage House, Longfellow's home, 13-4725
Long's Peak, mountain, 7-3233
Longview, Washington, lumber mills, with picture, 18-5318-19
Longview Farm, Mo., note and picture, 13-5176-77
Lönnrot, Elias, and the Kalevala, 19-7014
Looking-glass, see *Mirror*
Looms, see *Weaving*
Loons, birds, 11-4122-23
Picture
 black-throated loon (in color), 9-3122
 red-throated loon (in color), 2-3303
Loosestrife, flower, description, 16-3376
 purple, note on, 16-3374
 yellow, description, 16-3389
 yellow, note on, 16-3377
Picture
 purple loosestrife, 16-3376
 purple loosestrife (in color), 16-3384
 yellow loosestrife, 16-3377
 yellow loosestrife (in color), 16-3382
Picture with note, 14-5155
Lope de Vega, see *Vega*
Lopez, Carlos Antonio, ruler of Uruguay, 19-6001
Lopez de Cardenas, discovered the Grand Canyon, 7-3372
Lopez de Mendonça, Henrique, see *Poetry Index*, for poem and note
Lord Dunmore's War, and Daniel Boone, 6-3122
Lord of the Lions (story), 2-344
Lords-and-ladies, name for cuckoo-pint, 17-4122
Lorenzetti, Pietro, Italian painter, 2-337
Picture, St. Francis and St. John with the Madonna, 2-341
Lorenzo, Florentino di, Italian painter, 3-353
Lorenzo Marques, Portuguese port in East Africa, on the line between Mozambique and It is the terminus of the shortest railway route to the Transvaal
Lories, birds, 10-3614
Lorikeets, birds, 10-3614
Picture (in color), 10-3622
 Swainson's lorikeet (in color), 10-3621
Loring, Frances, Canadian shipper, 14-3071-72
Picture, Grief, statue, 14-3072
Loriquets, see *Lorikeets*
Loris, animal, *Picture*, 1-311
Lorrain, Claude, French painter, 5-1819
Picture
 David at the Cave of Adullam, 5-1833
 Leda and the Swan, 5-1875
Lorraine, Old French province which contains Metz, Nancy and Verdun. Part of it which was taken by Germany in 1871 was restored to France in 1918.
 see also *Alsace-Lorraine*
Lory, bird
Picture, black-capped (in color), 10-3622
Los Angeles, Progressive and rapidly growing California city, the center of the American moving-picture industry. There is also a great export trade in fruit, besides engineering and oil industries. Noted for the public spirit and community pride of its people.
 description, 19-3345, 3350
 radio station, 17-6375
Picture
 California, 7-2312
 Pershing Square, 19-3347
 Sunset near 6-1018, 2179, 9-3217
Los Angeles, street, 1-17
 description and picture, 1-17
"Lost Battalion", World War, and *Clear Arm*, poem, 7-3115
Picture about Clear Arm, I. S. C., by Harry Webb (caption), 6-3111
Lost Chord, song, record of, 10-4211
Lost Colony of Roanoke, 17-3322-23
 14-3322-23
Lost continent between Asia and Australia, map, 8-2717
Question about, What is the lost continent? 8-2717-18
Lotto, Lorenzo, Italian painter, 3-3101
Picture, Laura de Pina (grave), 3-3111
Loud speaker, in radio, invention and use, 17-6135

Loudan, Mouat, British painter

- Picture*, Elaine the Fair, 16-5822
Louis, St., see *Louis IX*, King of France
Louis IX, King of France
 * 113, 16-5817-19
 description of, by Joinville, 18-6562
 seal ring, 10-3422, 3423
 in the Crusades, 7-2559
Picture
 a prisoner of the Saracens, 7-2542
 dispossessed justice (grave), 16-5814
 little King Louis and his mother (grave), 16-5815
 seated on throne, 10-3429
Louis XI, King of France
 tests of, described by Comines, 18-6563
 visited the tower, 10-3435
Picture, a peasant's suit, 10-3435
Louis XII, King of France
 when about to take a woman, 3-357
Louis XIV, King of France
 reign of, 10-3436, 3437
 and French art, 5-1873, 1874
 built palace of Versailles, 18-6560
 German war and intrigue, 11-3364, 3366
Picture, portrait, with parents, 15-5617
Louis XVI, King of France
 executed in year of life
 character, 6-1113, 1110, 10-3564
 prayer at beginning of reign, 10-3562
 efforts for reform, 10-3561
 and the French Revolution, 10-3563-65
 condemnation and death, 6-1112
 death of, 10-3563
Picture
 portrait, 6-1117
 scenes during the Revolution, 6-3123
 with parents, 10-3561
Louis XVIII, King of France, reign, 10-3572
Louis Philippe, King of France, 10-3573-75
Louisbourg, Nova Scotia
 capture by English, 1758, 2-353, 3-752
 capture by Piquet, 1758, 2-353; 3-778
Louise, queen of Prussia
 Napoleon's answer to her plea, 11-3395
Louisiade Archipelago, 9-374
Louisiana, State containing the mouth of the Mississippi, area, 14,535 square miles; capital, Baton Rouge. It produces much cotton, sugar, rice, corn and fruit, and has forests of pine, cypress, oak, white-oak and magnolia. Leads in production of sulphur, and also has much petroleum. Here is the great port of New Orleans, the largest city in the state. Aberration, i.e., No. 10, "Belgian State" or "Creole State". State flower, magnolia. Motto, "Union, Justice and Confidence." Louisiana was named for Louis XIV of France by Robert de La Salle in 1682. First settlement, below New Orleans, 1718.
 see also *Southern States*, 13-4517-23;
 14-4522-4223
history
 De Soto's expedition, 1-144
 early red and named by La Salle, 1-245
 French came in Spain, 3-753
 French became prominent, 5-1702
 French sold to U. S., 5-1701-1
 a War of 1812, 5-1703
 ceded to United States, 5-1701, 11-3352
 seceded (Jan. 26, 1861), 7-2443
 in Civil War, 13-4524
 produces sulphur and petroleum, 13-4526
Picture
 from the Mississippi, 16-4577-78
 Baton Rouge, Louisiana, 5-1703
 see also *Mississippi*, 19-718
 Jackson Square, New Orleans, 14-4523
 sugar plantation, 10-3417
 sugar refinery, 14-4521
Louisiana Purchase, 5-1701-1702, 11-3352; 18-3485
Louisville, Kentucky, A center of navigation on the Ohio River, in the middle of agricultural country, close up to truck gardens. Nearby are huge forests and coal and iron mines. The city has many educational institutions. Many great manufacturing facilities make Louisville the center of a great distribution trade. The coal-burner market is one of the largest in the world, and there are large hardware and grocery houses, shoe-makers, flour, wheat and corn mills.
Lounsbury, Charles, last will of, 5-1837

GENERAL INDEX

- Lourdes.** French pilgrimage town at the foot of the Pyrenees, with a famous shrine in a grotto. It is estimated that 600,000 pilgrims visit yearly the shrine of Our Lady of Lourdes.
- Louse,** cause of trench fever, 18-6732-33
- Louse-wort,** parasitic plant, 1-332
- Louvain.** Belgian university city, a famous ancient seat of learning. The cathedral and university library were destroyed by the Germans in 1914, but the splendid town hall remains.
- Picture.* Town Hall, 15-5503
- L'Ouverture, Toussaint,** *see* Toussaint l'Ouverture
- Louvre,** palace, now an art gallery, Paris architecture, 18-6495-96
- Question about.* Where and what is the Louvre? 15-5362
- Picture* (gravure), 11-3826
- Love**
- as inspiration to art, 1-62
- Poems about*
- Abou Ben Adhem and the Angel, by Leigh Hunt, 3-1138
- The Bargain, by Sir Philip Sidney, 19-6991
- Bedouin Song, by Bayard Taylor, 9-3270
- Blind Archer, by Sir A. C. Doyle, 7-2526
- Disdain Returned, by Thomas Carew, 9-3110
- The Great Adventurer, 8-2767
- How do I love thee, by Mrs. E. B. Browning, 15-5647
- How Many Times? by T. L. Beddoes, 10-3644
- Life in a Love, by Robert Browning, 1-325
- Love and Friendship, by Thomas Moore, 19-6872
- Love and the Young Knight, by T. G. Roberts, 10-3484
- Love's Reasonings, by Charles Mackay, 11-4033
- Man's Requirements, by Mrs. E. B. Browning, 5-1646
- A Match, by A. C. Swinburne, 8-3006
- Passionate Shepherd, by Christopher Marlowe, 9-3274
- Red, Red Rose, by Robert Burns, 9-3274
- When You are Old, by William Ernest Henley, 16-5866
- Woman's Shortcomings, by Mrs. E. B. Browning, 13-4743
- For fuller list, *see* 20-7674-75
- "Love-apple," name for tomato, 7-2614
- Love birds,** 10-3618
- Picture,* 10-3615
- Lovelace, Francis,** governor of New York colony started first mail service in North America, 8-2653
- Lovelace, Richard,** *see* Poetry Index for poems and notes
- Lover, Samuel,** Irish writer wrote song, Rory O'More, 10-3610
- See also* Poetry Index, for poems and notes
- Low Countries**
- Question about.* What are the Low Countries? 17-6288
- Lowell, Amy,** author, 14-5013
- Picture.* portrait, 14-5013
- Lowell, James Russell,** American writer
- * life and writings, 13-4728-29
- essays of, 13-4815
- verse to Asa Gray, 19-7054
- See also* Poetry Index, for poems and notes
- Picture.* portrait and note, 13-4724
- Lowell, Percival,** astronomer, 1-286-87
- Lowell.** Important industrial city of Massachusetts, with cotton, woolen and machinery manufactures.
- Lower Canada** (now Quebec)
- * history, 1791-1840, 3-944-46
- government under Lord Durham, 4-1483
- joined to Upper Canada, 1840, 4-1484
- See also* Quebec
- Loyalists,** those loyal to England in American Revolution
- Canadian, in War of 1812, 5-1705
- Canadian settlements from U. S., 3-944
- leave United States after peace, 5-1696
- Loyalty Islands,** account of, 9-3304
- belong to France, 9-3302
- Loyola, St. Ignatius de,** 13-4869
- Picture.* portrait, 13-4859
- Lozeau, Albert,** French Canadian poet, 14-5110
- Lübeck.** Important German Baltic port, formerly head of the Hanseatic League.
- Lucas, J. Seymour,** British painter
- Pictures*
- Louis XI in peasant's hut, 10-3435
- Sir Francis Drake (in group), 5-1819
- Lucca.** City of northern Italy, with a great trade in olive oil and silk. Once a powerful republic, it has an 11th-century cathedral, nearly 40 churches, and some fine art collections.
- Lucerne, Switzerland**
- description,* 17-6089
- Lion of Lucerne, 3-888; 6-2132
- notes and picture, 16-6006-07
- Lucerne, Lake of.** One of the most beautiful Swiss lakes, covering 44 square miles. It is dominated by the mountain peaks of Rigi and Pilatus, famous for the splendid views from their summits; at its west end is Lucerne.
- Picture,* 17-6085
- Lucerne, or alfalfa, fodder-plant,** 7-2412
- Lucifer,** in ancient mythology, was Venus, the morning star, 9-3233
- Lucilius, Caius,** Roman poet, 16-5909
- Lucius Junius Brutus,** *see* Brutus, Lucius Junius
- Lucknow.** City in the United Provinces, India, with silk, glass, muslin and metal industries.
- siege of,* 7-2299; 8-2828
- Picture.* tomb of Zenab Aliya, 15-5480
- Lucrece, Rape of,** poem by Shakespeare account of, and quotation, 2-723
- Lucretius, Roman poet,** 16-5910
- Ludwig II of Bavaria,** gave aid to Wagner, 19-6923
- Lufbery, Raoul,** American aviator, 17-6293-94
- Lugano, Lake of.** Lake on the border of Italy and Switzerland, between Lakes Como and Maggiore. It covers 20 square miles.
- Luini, Bernardino,** Italian painter, 3-1107
- Picture.* Jesus among the Doctors, 3-1102
- Luke, Mrs.,** *see* Poetry Index for poem and note
- Lukin, Lionel,** and invention of lifeboat, 19-7207
- Lullabies, poems**
- At Twilight, by W. C. Roberts, 11-4114
- Cradle Song, by Isaac Watts, 14-5241
- Cradle Song, by Lord Tennyson, 3-848
- Cuddle Doon, by Anderson, 11-4116
- Fairy Lullaby, by William Shakespeare, 6-2153
- Gaelic Lullaby, 10-3480
- Good-night, by Jane Taylor, 1-324
- Hush-a-bye, baby, on the tree-top, 8-2770
- Lullaby! O Lullaby! by W. C. Bennett, 13-4600
- Lullaby of an Infant Chief, by Sir Walter Scott, 2-736
- Mother to her Infant, by Thomas Miller, 8-2906
- Sleep, Baby, Sleep, 14-5238
- Sleep, Baby, Sleep, our Cottage Vale is Deep, 3-1143
- Sleep Beauty Bright, by William Blake, 3-848
- Son of My Heart (German folk-song), 7-2366
- Sweet and Low, by Lord Tennyson, 1-322
- Lumber and lumbering**
- * important timber trees, 12-4245-50
- * in United States, 16-5985-96
- in Northeastern U. S., 10-3408
- in Southern states, 13-4524
- production of lumber in U. S., 8-2680
- waste of lumber in North America, 12-1250
- wood
- defects and blemishes, 5-1766-67
- defects, reason for, 8-3024
- durability, table of, 10-3632
- how made into pulp for paper, 7-2146-52
- Pictures*
- in Western states, 18-6428-29
- logs by Australian saw-mill, 7-2467
- logs sent to paper-mill, 7-2447, 2449
- railroad ties cut from national forest, 8-2811
- * *Pictures,* with notes, 16-5987-96
- Lumpfish, fish**
- Picture.* (in color), 16-5783
- Lumpsucker, fish,** 16-5776, 5778
- Picture,* 16-5777
- Luna, the Moon**
- in ancient mythology, 9-3233
- Lunch, preparing for picnic,** 11-4015
- Lundstrom, J. E.,** invented safety matches, 19-6968
- Lundy's Lane, or Bridgewater, Battle of,** 1814. In the War of 1812 Canadians under Sir Gordon Drummond compelled Americans under General Jacob Brown to retire from the field.

GENERAL INDEX



Lungs, organs of breathing

* Life and the lungs, 4-1325-31

and the heart, 4-1212

elasticity of, 4-1329

furnish oxygen to blood, 3-805-06

of scorpions, 16-6011-12

position and structure, 4-1326

size of surface, 4-1329

See also Breathing

Picture, diagram and note, 4-1327

Lupines, plants, 18-6664

Picture, 18-6659

Luques, Hernando de, friend of Pizarro, 19-6861

Lusiads, The, poem by Camoëns, 19-7130

Lusitania, ship, 12-4416

Picture, 17-6407

Luther, Martin. German religious reformer; born, Eisleben, near Halle, 1483; died there, 1546; leader of the Reformation in Germany.

as hymn-writer, 12-4436

at Wittenberg, description of, for game,

8-3023

opposed Pope and translated Bible, 11-3963-64

portrait painted by Cranach, 4-1344

Picture

portrait, 12-4439

portrait, with mother, 15-5615

Lutyens, Sir Edwin, English architect, 18-6492

Lützen, Battle of. Fought in Saxony in 1632.

Gustavus Adolphus with 18,000 Swedes defeated Wallenstein with 30,000 Imperialists, but fell in the battle.

Luini, Bernardino, see Luini, Bernardino

Luxembourg Palace, Paris, 18-6194

built by Marie de Medici, 5-1874

Luxemburg, 15-5498

Luxor. Upper Egyptian winter resort famous for its remains of ancient Thebes. Among these are the Luxor temple and court of Rameses, while near by is the Valley of the Kings, burial-place of Tutankhamen and other pharaohs.

temples and ruins, 3-818; 14-5212

Picture, temple (graveure), 14-5214

Lyll, Mrs. Muntz, see Muntz, Laura

Lycidas, poem by Milton, account of, 4-1236

Lycopodium powder, from club-mosses, 10-3724

Lycurgus, Spartan law-giver, 3-1072

Lyell, Sir Charles, Scottish geologist, 2-591-92

Picture, portrait, 2-589

Lyly, John. English poet and writer of plays, founder of the euphuist school; born, Weald of Kent, about 1554; died, London, 1606.

preceded Shakespeare, 2-721

Lyme Regis, fossils found in quarries, 5-1546

Lynd, Sylvia, see Poetry Index for poem and note

Lynmouth, England

Picture (graveure), 7-2304

Lynn, Ethel, see Poetry Index for poem and note

Lynn, Mass., shoemaking centre, 18-6442

Lynn. Picture (graveure), 2-499

Lyon, Mary, American educator, 14-5270

Lyons. Third city of France, at the junction of the Rhone and Saône. The staple industry is the manufacture of silk, it being estimated that over 100,000 hand and power looms here are engaged in the trade. Other important industries are the chemical, engineering and iron foundings. There are fine 13th- and 14th-century cathedrals and a famous fair.

Lyre, instrument of ancient times, 13-4594

use by ancient Greeks, 19-6900

Lyre birds, 9-3288

Picture (in color), 10-3623

Lyric poetry

definition, 1-99-100

varieties, 1-223

Lyrids, shower of meteors, 10-3672

Lysicrates, winner in the dramatic contest of the Dionysiac games at Athens, about 334 B.C.

Choragic Monument of, 15-5345

Picture (graveure), 15-5350

Lysippus, Greek sculptor, 12-4332

Picture, Apoxyomenus, statue (graveure),

12-4335

Lysol, remedy for ear smut, 5-1852

Lyte, Henry Francis, hymn-writer, 12-4440

See also Poetry Index, for poems and notes

Picture, portrait, 12-4439

Lytton, Edward Lytton Bulwer, 1st baron, Eng-

lish novelist, 11-3891-92

See also Poetry Index, for poem and note

Picture, portrait, 11-3891

Mabuse, see Gossaert, Jan

McAdam, John Loudon. Scottish engineer, the inventor of macadamized roads; born, Ayr, 1756; died, Moffat, Dumfriesshire, 1836.

MacAlpine, Kenneth, early Scottish ruler, 12-4205-06

Macao. Portuguese settlement, established in 1557, at the mouth of the Canton River, China.

Macaroni. A wheat paste containing a large percentage of gluten. It is made in the form of tubes of different diameters. Formerly a product peculiar to Italy, now made in China, France, the United States, etc. After the wheat is ground and the bran removed, it is worked into a dough with hot water and squeezed through a cylinder perforated at the bottom with holes of the size required. The strips, usually 3 feet in length, are then dried in the sun.

made from hard wheat, 4-1474

Picture, showing drying method, 13-4571

McArthur, Peter, Canadian author, 15-5371-72

Macaulay, Thomas Babington

* life, 9-3204-05

as a historian, 9-3204

as a poet, 12-4228-29

as essay writer, 8-2866

note on Lays of Ancient Rome, 10-3639

See also Poetry Index, for poems and notes

Picture, portrait, 9-3201

Macaws, birds, 10-3616

Picture, 10-3615

blue and yellow (in color), 10-3622

red and blue (in color), 10-3622

Macbeth, Scottish chieftain, 12-4206

Macbeth, play by Shakespeare, criticism, 3-985

Macbeth, Mrs. Madge, Canadian novelist, 15-5369

Picture, portrait, 15-5372

Maccabees, Jewish heroes, 19-7157

work of Judas Maccabaeus, 13-4584

McCarroll, James, see Poetry Index for poem and note

MacCarthy, Hamilton P., Canadian sculptor, 14-5075

McCaw, Isabel, see Poetry Index for poem and note

McClellan, George Brinton (1826-85). An American soldier, born in Philadelphia. He graduated at West Point; served in Mexican War; later resigned from army to engage in railroad building. During the first part of the Civil War he held high command; Democratic candidate for president, 1864; governor of New Jersey, 1878-81.

at Sharpsburg (or Antietam), 7-2434

begins to train army, 7-2433

efforts to take Richmond, 7-2434

Picture, portrait, 7-2437

McClung, Mrs. Nellie, Canadian author, 15-5371

Picture, portrait, 15-5371

McCormick, Cyrus Hall, invented reaping machine, 19-7219

McCrae, John, Canadian poet, 14-5109

See also Poetry Index for poem and note

McGudden, James, English aviator, 17-6293

Macdonald, Allan, husband of Flora Macdonald,

15-5644

in North Carolina, 4-1166

Macdonald, Mrs. Elizabeth Roberts, Canadian

author, 14-5107

See also Poetry Index for poem and note

Macdonald, Flora

aid given Prince Charlie, 15-5643-44

in America, 15-5644

Macdonald, George, Scottish writer

as author, 11-3897

wrote fairy tales, 9-3199

See also Poetry Index for poems and notes

Picture, portrait, 9-3193

Macdonald, Sir John Alexander, premier of

Canada, 4-1489

and Canadian Pacific Railway, 4-1490

and protective tariff, 4-1490

length of term, 4-1491

Macdonald, J. E. H., Canadian artist, 10-3704,

3709

Macdonald, Margaret

Picture, memorial to her, Lincoln's Inn Fields,

13-1858

GENERAL INDEX

- MacDonald, Thomas Hood**, and talking-machine inventions, 1-262
- Macdonald, Wilson**, Canadian author, 14-5109
- McDonnell, John F.**, *see* Poetry Index for poem and note
- Macdonough, Thomas**, naval commander, 17-6332
Picture, portrait, 17-6327
- Macdougall, William**, and Riel rebellion, 4-1489
- MacDowell, Edward Alexander**, American musical composer, 19-7153
life and work, 19-6926
- Mace**, spice, 8-2992, 2994
- Mace**. A heavy staff or club, and often a spike, used in the Middle Ages for breaking armor. Often carried before a magistrate or dignitary as a symbol of his authority.
- Macedonia**. Native kingdom of Alexander the Great, but now belonging chiefly to Jugo-Slavia and Greece. It is peopled by a great mixture of races, including Bulgars, Serbs, Jews, Greeks, Turks and Vlachs.
conquest by Rome, 4-1196
history, from Philip to Roman conquest, 3-1082
- Macedonian**, ship
beaten by the ship United States, 5-1704; 17-6329
- McEwen, Walter**, paintings in Library of Congress, 5-1536
- McGee, Thomas D'Arcy**, *see* Poetry Index, for poems and notes
- McGill University**
Picture, students playing hockey, 10-3695
- Macgillivuddy's Beeks**. Mountain group in County Kerry containing Carrantuohill, the highest Irish mountain, 3,400 feet.
- Machinery**, economic relations
effect on English industry, 19th century, 7-2294
savings, or capital, necessary to production, 17-6362
- McIntire, Samuel**, builder, 18-6774
- Macintosh, Charles**, made waterproof coats, 4-1406
- Mackay, A. F.**, antarctic explorer, 14-5093
- Mackay, Charles**, wrote *Cheer, Boys, Cheer*, Sebastopol is Taken, 10-3608
See also Poetry Index for poems and notes
Picture, portrait, 10-3605
- Mackay, Donald**, shipbuilder, 11-3920
- McKay, Gordon**, and sewing machine, 18-6441
- Mackay, Mrs. Isabel Ecclestone**, Canadian author, 14-5110, 5371
Picture, portrait, 14-5102
- McKay sewing machine**, for shoes, 18-6442
- Mackennal, Sir Bertram**, British sculptor
Picture, model for bronze group, 13-4857
- Mackenzie, Alexander**, premier of Canada, 4-1490
- Mackenzie, Alexander**, Scottish explorer explored for fur trade, 12-4337
- Mackenzie, E. Tait**, Canadian sculptor, 14-5076, 5078
Pictures
The Onslaught, 14-5075
The Supple Juggler, 14-5076
- Mackenzie, William Lyon**, Canadian leader, 3-946
Picture, portrait, 3-946
- Mackenzie**, district of Canada, 4-1490
- Mackenzie**. Great Canadian river, rising in the Rockies and flowing into the Arctic. It is navigable for many miles in summer. Including the Peace River it is 2,350 miles long.
valley of, 7-2560
- Mackerel**, fish, 16-5775
Pictures, 16-5777; (in color), 16-5783, 5788
"Mackerel sky," clouds, description of, 8-2923
Picture, 8-2928
- McKim, Mead and White**, American architectural firm, 18-6684
- McKinley, William**, president of U. S., 8-2672
administration, 11-2944
life, outline of, 11-3954
Picture, portrait (gravure), 11-3947
- McKinley, Mt.**
height, 1-154; 10-2584
highest mountain in North America, 7-2285, 2288
note and *picture*, 7-2289
- McKishnie, Archie F.**, Canadian author, 15-5371
- MacLagan, Alexander**, *see* Poetry Index for poem and note
- MacLaren, Ian**, pseudonym, *see* Watson, John
- MacLellan, Isaac**, *see* Poetry Index, for poem and note
- McLennan, William**, *see* Poetry Index for poem and note
- MacLeod, Fiona**, pseudonym, *see* Sharp, William
- MacLise, Lan-el**, British painter
Picture, Marvolo and the Countess, 3-487
Wellington and Blücher after Waterloo, 6-2198
- McMaster, John Bach**, American historian, 13-4823
- Macmillan, Cyrus**, Canadian author, 15-5373-74
Picture, portrait, 15-5373
- Macmillan, Donald B.**, arctic explorer, 13-4722
Pictures of expedition, with notes, 13-4723
- MacMonnies, Frederick**, American sculptor, 14-4938
statue of Nathan Hale, 11-3996
Picture, statue of Nathan Hale, 11-3997
- MacMurrough, Dermot**, 8-2932
- MacNally, Leonard**, wrote *Lass of Richmond Hill*, 10-3609
- MacNeil, Hermon Atkins**, American sculptor, 14-4939
Picture, The Sun Vow, 14-4935
- Macoun, John**, Canadian naturalist, 19-7056
Picture, portrait, 19-7056
- MacPherson, James**, and poems of Ossian, 6-2027
- Macpherson**, Scottish rhyme about, 12-4205
- Madagascar**. Largest island in the Indian Ocean; area, 228,000 square miles; capital, Antananarivo. Peopled by Malagasy races of mixed African and Asiatic descent, it was discovered by the Portuguese in 1500, and was for many centuries an independent kingdom; the French established trading posts on the island in the 17th and 18th centuries, finally annexing it in 1896. Rice, sugar, hemp, cocoa, coffee, cotton, tobacco, rubber, gums and graphite are produced, and there are important radium deposits. Tamatave is the chief port.
French control of, 18-6811
- Madder**, plant, produces dye, 9-3154
Pictures, (in color), 8-2998
field madder, flower, 15-5400
- Madder Family** of plants, 8-2909
- Madeira**. Beautiful Portuguese island off the Moroccan coast; area, 315 square miles; capital, Funchal. Noted for its fertility and fine climate, it produces oranges, guavas, figs, mangoes, bananas, lemons, coffee and wine.
range of temperature, 8-2794
- Madeira River**. Chief tributary of the Amazon, almost rivaling it in size. It drains 425,000 square miles and is about two miles wide at its mouth. 2,200 miles.
- Madero, Francisco**, president of Mexico, 19-7140
- Madison, Mrs. Dorothy Payne (Dolly Madison)**, 2-394-95
Picture, portrait, 2-391
- Madison, James**, president of U. S. administration, 5-1703-04; 11-3938
life, outline of, 11-3951
notes in Constitution, 20-7558
wrote some of *Federalist*, 12-4450
Pictures
portrait, 5-1694
portrait (gravure), 11-3947
- Madison**. Capital of the state of Wisconsin, 82 miles from Milwaukee. The University of Wisconsin is here; manufactures include agricultural implements, boots and shoes, gasoline and oil engines, machine tools, candy, art glass, etc.
Picture, University, 12-4315
- Madonna**, in art
first pictures in catacombs, 2-578
in Italian painting, 3-958
Pictures, famous paintings and sculptures
Bellini (gravure), 3-1110
Botticelli, 2-695
Correggio, 3-1105; (gravure) 3-1111
David, 4-1224
Della Robbia, sculpture (gravure), 13-4612
Duccio, 2-697
Dürer, 4-1246
Florentine artists, 2-690
Fra Angelico, 2-694
Ghirlandaio, 2-693
Giotto, 2-694
Hans Holbein, 4-1347; (gravure) 4-1352

GENERAL INDEX

Madonna—*Pictures (continued)*

- in early French Sculpture, 13-4701
- Leonardo, 3-825
- Lochner, 4-1343
- Matsys, 4-1223
- Memling, 4-1224
- Michelangelo, 3-827; sculpture (graveure), 13-4613
- mosaic in Church of St. Gregory, 2-579
- Murillo, 4-1497
- Raphael (graveure), 3-961-64
- Ribera, 4-1494
- Rubens, 5-1584
- Van der Goes, 4-1221, 1223
- Van der Weyden, 4-1223

Madras. Third largest Indian city and port, on the Coromandel coast. Fort St. George was founded here in 1640, and the city, capital of the Presidency of the same name, is now the commercial centre of southern India.

won and lost by French, 8-2826

Madrid, capital of Spain, 14-5050

Madrigals

Question about. When were madrigals composed and sung? 16-5743-44

Madura. City of southern India, makes brass vessels and cottons. Here is a splendid ancient temple.

Pictures

corridor in the great temple (graveure), 8-2833

Hindu temple (graveure), 9-3093

island shrine, 8-2701

Mæcenæ, Caius. Roman statesman, patron of Virgil and Horace; lived 74-8 B.C.

Maelström. Strong current, once thought to be a whirlpool, between two of the southernmost of the Lofoten Islands, Norway. The word is often used figuratively, signifying stormy events.

Maes, Nicolaes, Dutch painter, pupil of Rembrandt

Picture. Young Girl Peeling Apples, 5-1593

Maeterlinck, Maurice

as writer of fairy tales, 9-3199

Blue Bird, summary and quotations, 14-5069-74

Mafeking. Administrative centre for British Bechuanaland, South Africa. It is famous for its defense by Sir Robert Baden-Powell in the Boer War, October 12, 1899, to May 17, 1900.

Mafra, Monastery of. *Picture.* 14-5191

Magdalena. River of Colombia, South America, flowing into the Caribbean Sea, 1,000 miles.

Magdeburg. German commercial city on the Elbe, with sugar, iron and cotton industries. It underwent a terrible sack in the Thirty Years' War.

Magdeburg, hemispheres, inclosing vacuum, 4-1244

Picture. 4-1245

Magellan, Ferdinand

discovered Mariana Islands, 9-3300

discoveries in South Seas, 9-3295-96

discovery of the Magellan Straits, 1-90

voyage to Pacific Ocean, 8-2980

Picture. monument at Punta Arenas, Chile, 1-90

Magellan Straits, discovery, 1-90

height of tides at, 7-2542

Picture. 19-6863

Magenta, Battle of, 12-4411-12

Magi (magicians or soothsayers). The priestly order of ancient Media, or Persia. Their religion was similar to that of the Parsees, and included belief in the advent of a Savior. The Gospel of St. Matthew tells of the coming of the wise men, or magi, from the East to worship Christ.

Magic lantern, directions for making, 8-3018-22

Magic scissors, trick, 3-1025

Magic square, problem of, 6-2166

Magna Carta (Great Charter)

granted by King John, 5-1571

signing of, description for same, 8-3023

Stephen Langton supported, 8-2850

Picture. King John signing, 5-1564

Magnesia, Battle of, 4-1196

Magnetite. A white brittle mineral with a glassy lustre. It occurs in compact or cleavable masses that look like porcelain. It is used for toilet preparations, paper-making and, with asbestos, as a fireproof covering for furnace pipes.

Magnet, *see* Magnets

Magnetic balance. A device for measuring magnetic forces, the principle being that gravitational force, due to a known weight, is balanced against the magnetic repelling force between two similar magnetic poles.

Magnetic needle, effect of electric current, 4-1251

Magnetic poles

northern, position charted by J. C. Ross, 8-2986

southern, discovery of, 14-5093

Ross's expedition to discover, 14-5090

Magnetism

and electricity, 16-5671-74

and sun-spots, 18-6694

in toys, magnetic top, 10-3509

See also Electromagnetism

Question about. Why is a needle no heavier

when magnetized? 11-3976

Magnets

* electromagnets, description and uses, 16-5797-5802

account of, 16-5797

early experiments with, 4-1251-52

lines of force, 16-5667

use in lifting steel plates, 6-1954

Question about. Do magnets ever lose their

magnetic power? 10-3581

Pictures

diagrams showing lines of force, 16-5667

electromagnets, 16-5796, 5799

Magnifying glasses, how they work, 2-462

in the story of the microscope, 13-4669

Magnolia trees, 12-4386

Magnum opus. Latin term meaning "great work." In English it is frequently applied to the principal literary work of an author.

Magpies, birds

account of, 8-2892; 14-5141

Picture

American magpie, 14-5141

Pictures (in color), 9-3131

green magpie, 12-4370

Magyars

invasion of Europe, 17-6192, 6194

note and picture, 17-6190

Mahan, Alfred Thayer. Eminent American naval historian; born, West Point, New York, 1840; died, Washington, 1914. His book, *The Influence of Sea Power upon History, 1660-1783*, exercised a great effect upon the policy of nations.

Mahmud of Ghazni, 8-2822

Mahogany, Hawaiian, from koa, 15-5450

Mahogany tree

Australian, name for Jarrah tree, 12-4249

description and value, 12-4249

wood

first piece seen in England, 14-4967

how to know, 6-2048; 16-5982

used for furniture, 18-6768, 6772, 6775

Picture. 13-4641

Mahomet, *see* Mohammed

Mahonia, shrub, 13-4783

Mahony, Francis Sylvester, *see* Poetry Index, for poem and note

Maidenhair, fern

Picture (in color), 10-3726-27

Mail-order service of department stores, 10-3678

Mail service, *see* Postal service

Mailshells, *see* Chitons

Main. Chief German tributary of the Rhine, passing Bamberg, Würzburg, Frankfurt and Mainz. 300 miles.

Maine. Northeasternmost state; area, 33,040 square miles; capital, Augusta. Portland is the largest city, and Bangor is an important town. Agriculture, lumbering, manufacturing, quarrying and shipbuilding are the principal industries. Abbreviation, Me. Nickname, "Pine Tree State." State flower, pine cone and tassel. Motto, "Dirigo" (I direct). The state was named for Maine, an ancient province of France possessed by Queen Henrietta, wife of Charles I of Great Britain. The first settlement was in Saco, in 1622.

described in Northeastern States, 10-3401-08

11-3773-82; 12-4145-54

failure of settlement at Sagadahoc, 2-544

made a state, 6-1914; 11-3938

manufacture of cutlery, 4-1306

Pine Tree state, 13-4636

GENERAL INDEX

- Maine** (*continued*)
 potato production, 10-3406
 settlement of boundary, 10-3494
Question about. Why is it hotter at the Equator than in Maine? 9-3101
Pictures
 falls in Penobscot, 12-4151
 flag (in color), 19-7190
 Longfellow's birthplace, 12-4152
 Old Orchard beach, 12-4151
 pines, 10-3407
Maine, ship, loss of, 10-3590
Mainz, or **Mayence**. Ancient German city at the junction of the Rhine and Main. It has a fine cathedral and a museum of Roman remains.
 home of Gutenberg, 9-3383
 legend of founding, 18-6507
Mair, Charles, Canadian author, 14-5107
Maisonneuve, Sieur de (Paul de Chomedey),
Picture, statue of, Montreal, 4-1482
Maize, cereal, 5-1623, 1856
See also Corn
Pictures, 5-1850; 7-2414
Majano, Benedetto da, Italian sculptor and architect, 13-4607; 17-6298
Pictures
 John the Baptist, statue (gravure), 13-4618
 Madonna and child (gravure) 5-1745
Majestic, steamship, 17-6404, 6408
 description, 12-4428
Pictures, 12-4430-32; 17-6408
Majorana, Major, and wireless telephony, 17-6248
Picture, portrait, 17-6235
Majorca. Largest of the Spanish Balearic Islands; area, 1,325 square miles; capital, Palma.
Majuba Hill, Battle of, 9-3050
Making the desert blossom, * 7-2543-55
Malacca Strait. Channel about 500 miles long connecting the Indian Ocean and South China Sea, and dividing Malay Peninsula from Sumatra.
Malachite, semi-precious stone
Picture (in color), facing 19-7225
Malaga. Important port in southern Spain, exporting olive-oil, wine, lead, fruit and esparto grass. It has a cathedral and a Moorish castle.
Picture, 14-5052
Malamute dogs of Eskimos, 7-2564
Malaria
 * discovery of causes, 15-5488, 5490-91
 and mosquitoes, 17-6417-18
 cause, and effect in blood, 3-806
 cold and fever in, 7-2485
 origin of name, 12-4278
Malay Peninsula, British possessions in, 9-3184
Malays. People who live in the Malay Peninsula, Tidor, Ternate, Borneo coastlands, and parts of the Sulu archipelago. They are more recent than the primitive Malaysians, whom they have dominated, and in many places supplanted. They originated from a tribe in Sumatra in the 13th century, and, becoming Mohammedans, spread their culture and language throughout the peninsula and archipelago.
 in Japan, 2-562
Malbone, Edward, American painter, 9-3330
Malcolm III, called **Canmore**, king of Scotland, 12-1206, 4208
Maldiv Islands, 9-3184
Malherbe, François de, French poet, 18-6711
Mallards, ducks, 11-3888
Picture (in color), 8-2898
Malleability. The quality of being extended or shaped by beating with a hammer or by the pressure of rollers. Many metals are malleable, noticeably gold, silver, copper, tin, platinum, lead, zinc (when hot).
Mallet, David, poet
 possible author of Rule, Britannia, 10-3606
Mallow Family of plants
 cotton belongs to, 8-2783
Mallows, plants
 marsh mallows, 14-5158
 note on, 14-5158
Pictures, 14-4979
Pictures (in color)
 common mallow, 14-4986
 marsh mallow and tree mallow, 14-4981
 musk mallow, 15-5611
Malmö. Third largest Swedish city and port, opposite Copenhagen. It exports timber, matches and dairy produce.
- Malope**. *Picture*, flower (gravure), 19-7175
Malory, Sir Thomas, author of *Morte d'Arthur*, 1-305
Malpighi, Marcello, Italian scientist
 discoveries with microscope, 13-4669-70
Picture, portrait, 13-4671
Malplaquet, Battle of. Fought in 1709, during the War of the Spanish Succession, between the French under Marshal Villars and the British and Imperial troops under Marlborough and Prince Eugene. After a desperate struggle the allies forced the French to retire, but the allied casualties were greater than those of the French.
Malta, island, 9-3182
Picture, 9-3185
Malta fever, discoveries of Sir David Bruce, 15-5492
Maltose, in making beer, 5-1852
Mammals, class of animals
 characteristics, 7-2591
 egg-laying mammals, 7-2593-95
 first ones in Triassic period, 5-1546
 origin and development of, 1-258-59
See also Animals—classes of—mammals
Mammoth, prehistoric animal, 6-2146
 fossils of, and size, 6-2147
 found in ice in Siberia, 1-94
Pictures, 1-93
 woolly mammoth, 6-1927, 2147
Mammoth Cave, Kentucky, 4-1298-1304
Pictures, 4-1298-1303
Mammoth Hot Springs, Yellowstone Park, 2-729
Picture, 2-731
Man
 body of, *see* Physiology
 brain, size of, 8-2944
 dependence on others, 19-6875-76
 effect of climate upon, 8-2663-64, 2667
Question about. Is a fly stronger than a man, comparing their size? 16-5844
Picture, skeleton compared with that of an elephant, 7-2361
Man, Prehistoric and primitive
 * Cave-men and their pictures, 1-189-96
 * life and dwellings of, 5-1655-58
 art, in Bronze Age, 1-289-90
 dwellings, 14-5208
 early surgery, 8-2721-22
 fire, discovery of, 9-3353
 first appearance, Pliocene period, 6-1925, 1928
 in England, 4-1316-17
 mastered giant sloth, 7-2397
 pins of thorn and bone, 9-3041
 writing of, 10-3545-46
Pictures, 6-1926-27
 cave-dwellings in Spain, 14-5045
 drawings of cave-men, 1-190-96
Mar in the moon, game, 3-903
Man-of-war birds, *see* Frigate birds
Man who loved plants, * 15-5381-86
Man with the Hoe, poem by Edwin Markham, 8-3003
Picture, by Jean François Millet, 8-3003
Man without a country, by E. E. Hale
 * summary and quotations, 7-2401-08
Manakins, birds, 9-3286, 3288
Pictures, 9-3287
 orange-headed manakin (in color), 12-4371
 yellow-fronted (in color), 10-3621
Manatee, sea mammal, 6-2213-14
Picture, 6-2219
Mancha, La, district in Spain, 5-1629
Manchester. Commercial capital and centre of the cotton trade of Lancashire, England. Covering over 20,000 acres, it is the greatest purely commercial city in England, and is closely surrounded by a network of industrial towns, of which it is practically one with Salford. In addition to its great textile trade, it is important as an engineering and railway centre, while there are many manufactures. The Manchester Ship Canal, navigable for ships of 12,500 tons, connects the city with Eastham on the Mersey, making it a port. It has a cathedral, built in 1421, and a university.
Manchester Ship Canal, note and picture, 13-4789
Manchu dynasty, China, 2-432
Manchuria. Important dependency of China, in the extreme northeast. The Manchus formerly supplied the ruling dynasty of China, but their power declined rapidly during the last century, and the greater part of the population of Man-

GENERAL INDEX

Manchuria (*continued*)

churia is now Chinese. The dependency is rich in minerals and timber, and much millet, wheat, barley and cotton is grown. Mukden, Harbin and Kirin are the chief towns. Area, 363,610 square miles.

settled by Manchus, 2-432

Mandalay. Capital of Upper Burma, India, on the Irrawaddy. Here is a temple with several hundred pagodas.

Mandamus. The Latin for "we command." An extraordinary legal remedy or order issued by a superior court to an inferior court or individual, directing it or him to perform a public duty as required by law.

Mandarin. A Chinese public officer, one of the nine orders entitled to wear a button on the hat. Called by the Chinese *Kuan*.

Mandarin. variety of orange, 6-2058

Mandeville, Sir John, reputed writer of travels, 1-304

Man drill, animal. *Picture* (gravure), 1-212

Maned wolf, wild dog, 2-600

Picture, 2-601

Manes, spirits of the dead, 9-3234

Manet, Edouard, French painter, 7-2476

Pictures

The Balcony, 7-2474

Boy with a Sword, 7-2479

Firing Party, 7-2477

Manetho, Egyptian writer, 3-821

Mangel, as food plant, 7-2412

Mangle

Question about. Why are the spokes of a mangle wheel curved? 7-2611

Mango

Picture, fruit (in color), 8-3000

Mangrove, account of, 9-3266

Manhattan Bridge, N. Y. city, 1-29

Manhattan Island, purchase by Dutch, 1626, 2-550

Manihot glaziovii, plant, produces rubber, 8-2790

Manila

capture by Dewey, 10-3588

founded, 1571, 10-3591

Pictures, 10-3589, 3591

Manila hemp, 8-2786, 2788; 11-3792-93

Pictures, plant, and manufacture, 11-3793

Manioc, root-plant, furnishes tapioca, 5-1624

Picture (in color), 8-2997

Manitoba. Canadian prairie province; area, 252,000 square miles; capital, Winnipeg. Wheat, oats, barley and flax are grown, and horses, cattle and swine reared. Winnipeg is the grain market of the eastern prairie region

became province of Dominion, 4-1489

government, 4-1489

Manitoba Lake. In the province of Manitoba, Canada. Area, 1,817 square miles.

Manlius, and defense of Rome, 11-3982

Manlius Imperiosus Torquatus, Titus, Roman consul, 11-3806

Mann, Horace, American educator, 14-5254

Manna grass. *Picture* (in color), 10-3523

Mannheim. German chemical and dyestuff-manufacturing centre, on the Rhine.

Manning, Henry Edward, Cardinal. English divine; born, Totteridge, 1808; died, 1892; succeeded Cardinal Wiseman as Roman Catholic archbishop of Westminster.

Picture, portrait by G. F. Watts (gravure), 6-2237

Manoel II, last king of Portugal, 14-5188

Manor house of England, description, 18-6489

Mans, Le, *see* Le Mans

Man ship, Paul, American sculptor, 14-4940

Picture, Dancer and Gazelles, 14-4935

Manson, Colard, and William Caxton, 9-3386

Manson, Sir Patrick. British physician and parasitologist, originator of a great campaign against the malaria-carrying mosquito; born, Fingask, Aberdeenshire, 1844; died, 1922.

Picture, portrait, 15-5481

Mantegna, Andrea, Italian painter, 3-1103

Picture, St. George (gravure), 3-1112

Mantua. Fortress of northern Italy, on two islands formed by the Mincio. The birthplace of Virgil, it was important in the Middle Ages; its buildings include the old ducal palace, the cathedral, and the beautiful church of San Andrea, containing the tomb of Mantegna. Weaving, tanning and saltpetre industries.

church of Sant' Andrea, 17-6299

Manual training

For list of main articles, *see* 20-7633-37

Manucci, Aldus, *see* Manuzio

Manuel I, king of Portugal, and Vasco da Gama, 1-89

Manufactures

labor, skilled and unskilled, 17-6092

organization of, 17-6091-94

relation to coal, 3-788

See also Factories; names of countries or states, also of materials, or industries

For list of main articles, *see* 20-7627

Manure

Question. Why does manure make a plant grow faster? 10-3581

Manuscripts, illumination of, 2-582

in France and England, 14th century, 4-1221

in Ireland and England, 2-582; 6-1999

stopped by invention of printing, 4-1221

Pictures of manuscripts, 6-2001; 8-2941, (in color), 2-477-80

Manutius, Aldus, *see* Manuzio

Manuzio, Aldo (Aldus Manutius), printer, 9-3388

Picture, portrait, 9-3383

Manx cat. *Picture*, 2-496

Manzanita, shrub, 13-4783

Maoris, natives of New Zealand, 7-2571-73

seats in Parliament, 7-2576

Pictures

chief, 9-3297

settlement, 7-2573

Maple leaf, emblem of Canada, 12-4507; 17-6181

Poem about. The Maple Leaf Forever, by

Alexander Muir, 19-6874

Maple sugar

production of, 10-3420

where most produced, 10-3420

Pictures, process of making, 10-3424

Maple syrup, how made, 10-3420

Maple trees

blossoms, 17-6273

note on, 12-4256

striped, account of, 13-4777-78

sugar maple, 7-2532; 12-4508, 4511

production of sugar, 10-3420

sycamore maple, 11-4100

description, 12-4248

fruit of, 11-4020

varieties, 12-4248, 4507-08

wood, how to know, 6-2048; 16-5982

Pictures, 12-4256

fruit (in color), 11-4022

striped, 13-4777

sugar maple, 12-4511

sycamore maple, 11-4100

tapping sugar maples, 10-3424

Maps, game, to make into pictures, 9-3375-76

of world as known, different periods, 1-42

See also names of countries for maps of them

Mara, demon, 10-3477

Marabou, variety of stork, 11-4008

Picture, 11-4004

Maracaibo. Venezuelan seaport near the entrance to Lake of Maracaibo.

Maracaibo, Lake. Venezuelan fresh-water lagoon draining into the Gulf of Maracaibo.

Marat, Jean Paul, in French Revolution, 6-2134

killed by Charlotte Corday, 10-3570

Picture, portrait, 6-2127

Marathon, Battle of, 3-1076; 13-4584

Phaidippides brought news of, 3-887

Marble

Carrara, 13-4575

description, 17-6386

states of U. S. producing, 9-2210

Southern states, production of, with pictures, 13-4528

Vermont production, 11-3773

Marble bag, how to make, 3-1149

Marble Bridge, Pekin, 1-40

Marbles, games, 17-6389

bounce about, 3-1029

Question about. Why does Mother put a marble in the kettle? 5-1809

March. The third month of the year in the Julian and Gregorian calendars, containing 31 days. Named for Mars, the Roman god of war.

March of the Men of Harlech, Welsh song, 10-2612

Marchand, Jean Baptiste, and the Sudan, 11-3824

Marching through Georgia, song, written by Work, 18-6513

GENERAL INDEX

- Marchmont, Earl of (Sir Patrick Hume),** 2-441-43
- Marco Polo, see** Polo, Marco
- Marconi, Guglielmo,** Italian inventor, 4-1254
invention of wireless telegraph, 17-6247
Picture, portrait, 17-6246
- Marconi Wireless Telegraph Company,** 17-6372
- Marcus Aurelius (Antoninus),** 5-1865
Pictures
portrait relief (gravure), 1-68
statue of, 5-1866
- Mardi Gras,** literally "fat Tuesday," the last day of Carnival, Shrove Tuesday, celebrated in some cities as in Rome, Paris, New Orleans.
- Mardonius,** Persian General, 3-1078
- Marengo, Battle of,** 6-2203; 10-3570
- Mare's nest**
Question about. Why do we use the expression mare's nest? 10-3477
- Margaret,** called Maid of Norway, 12-4208
betrothed to Edward II, 5-1680
- Margaret, Queen,** wife of Edward IV of England
son saved by robber, description for game, 8-3023
- Margaret, queen of Scotland,** wife of Malcolm III, 12-4206
Picture, arriving in Scotland, 12-4206
- Margaret of Anjou,** wife of Henry VI, 5-1686
- Margaret River,** Australia, stalactites in, 7-2473
- Marggraf, Andreas Sigismund,** discovered sugar in beets, 10-3418
- Marguerites,** paper flowers, how to make, 12-4500
- Maria de Medici, see** Marie de Medicis
- Maria Louisa, see** Marie Louise
- Maria Theresa,** empress of Austria
and Frederick the Great, 11-4048-49
appeal to Hungarian nobles, with picture, 17-6193
reign of, 11-3966
- Mariana, queen of Austria**
Picture, portrait by Velasquez (gravure), 4-1504
- Mariana, Juan de,** Spanish historian, 19-7125
- Mariana Islands,** 9-3300, 3302
- Marie Antoinette,** queen of Louis XVI
(arranged in order of life)
playing at Versailles, 10-3564
in French Revolution, 6-2134
refused escape through leaving her children, 6-2009
death of, 10-3568
Pictures
Marie Antoinette, Louis XVI and their Children in Prison, 6-2133
Marie Antoinette Walks to her Death, 6-2133
- Marie de Medicis, wife of Henry IV of France,** 10-3436
built Luxembourg Palace, 5-1874
- Marie Louise, empress of France,** marriage to Napoleon I, 6-2207
- Marietta,** first settlement in Ohio, 6-1908
- Marigold, flower**
Pictures
African marigold (gravure), 19-7176, 7180
corn marigold (in color) 15-5397
- Marigold, Marsh, see** Marsh marigold
- Mariner's compass, see** Compass, Mariner's
- Marines, United States,** 18-6818
- Marion, Francis,** in American Revolution, 4-1170
Poem about. Song of Marion's Men, by W. C. Bryant, 11-4032
Picture, portrait, 4-1165
- Marionette, Living,** how to make, 5-1769-70
- Mariposa lilies,** description, 18-6662
Picture, 18-6663
- Maris, Jacob,** Dutch painter, 8-2853
- Maris, Matthew,** Dutch painter, 8-2853
Picture, Outskirts of a Town (gravure), 8-2864
- Maris, William,** Dutch painter, 8-2853
- Maritza,** River of Bulgaria and Turkey, rising in the Rhodope and flowing past Philippopolis and Adrianople into the Aegean. 300 miles.
- Marius, Caius,** Roman general, 4-1198, 1365
- Marjoram, flower**
Picture (in color), 14-4986
- Mark, St.**
body brought to Venice, year 828, 4-1455
Picture, in mosaic, 13-4564
- Mark Antony, see** Antony, Mark
- Mark Twain, see** Clemens, Samuel Langhorne
- Markham, Sir Clements,** obtained cinchona plants from South America, 8-2910
- Markham, Edwin,** poet, 14-5013
See also Poetry Index for poems and notes
Picture, portrait, 14-5013
- Markhor,** wild goat, 4-1378
Picture, 4-1374
- Marks, Henry Stacy,** artist
Picture, Meeting of Parrots, 10-3619
- Marlborough, John Churchill, Duke of.** English statesman and general; born, near Musbury, England, 1650; died, near Windsor, 1722.
effect of his victories, 6-1981
Pictures
portrait, by Sir Godfrey Kneller, 6-2002
Marlborough and his Men, 6-2099
- Marlborough, Sarah Jennings, Duchess of,** 6-1981
Picture, portrait, by Sir Godfrey Kneller, 6-2002
- Marlbrough s'en va-t-en-Guerre,** song, account of, 10-3612
- Marline-spike,** definition, 14-5004
Picture, 14-5003
- Marlowe, Christopher,** English dramatist, 3-1124
See also Poetry Index for poem and note
- Marmette, Joseph,** wrote novels of Canadian history, 14-5110
- Marmora, Sea of.** Small inland sea lying between European and Asiatic Turkey. It connects with the Black Sea by the Bosphorus and with the Mediterranean by the Dardanelles.
- Marmots, animals,** 3-1132
Pictures, 3-1131
- Marne.** Chief tributary of the French Seine. Rising in the Langres plateau, it flows past Châlons and Epervay in Champagne to join the main stream at Charenton. On the Marne the German invasion of France was checked in 1914. 320 miles.
- Marot, Clément,** French poet, 18-6565
- Marque and reprisal.** Letters of marque were commissions issued by warring nations to ships commanded by their own citizens or neutrals, authorizing them to make war upon the enemy. Origin of term from *mark*, or *mark*, a boundary. Much in use during the 16th and 17th centuries, rarer at the end of the 18th, and finally by the Declaration of Paris abolished by all nations except by the United States.
- Marquesa Islands**
belong to France, 9-3298
described by Melville, 9-3304
shown on map, 9-3294
- Marquette, Jacques,** missionary
* life and work, 18-6631-34
explorations, 1-248
visited site of Chicago, 19-7105
Picture, statue in Capitol at Washington, 18-6633
- Marronis, Donald Robert Perry,** 14-5011
- Marrakesh, or Morocco City.** Southern capital of Morocco. A trading centre, it makes tiles, pottery and leather.
- Marram,** name for mat grass, 10-3663
- Marriage**
Question about. Why do all married women wear wedding rings? 7-2610
- Marrows,** account of, 7-2616
Pictures, 7-2620-21
- Marryat, Frederick,** English captain and novelist
- * Masterman Ready, summary and quotations, 18-6757-66
note on, 11-3892; 18-6757
sea stories, 11-3892
- Mars (Ares), god,** 9-3227
- Mars, planet,** 9-3291-93
canals on, 1-286-87
changes in, 18-6693
distance from sun and length of its year, 9-3180
possible communication with, 4-1353-54
Pictures, 9-3291
supposed canals and desert spaces, 9-3292
- Marsden, Samuel**
missionary to New Zealand, 7-2572
- Marseillaise,** French national song
author, and influence, 10-3605-06; 3-1135
in French Revolution, 10-3568
note on, 12-4472
- Marseilles, France**
description, 11-3820
founded by Ionians, 3-1072
situation, 11-3816
soldiers from, in French Revolution, 10-3566, 3568

GENERAL INDEX

- Marsh, Othniel C.**, studied prehistoric birds, 8-2758
- Marsh carex**, *see* Carex, Marsh
- Marsh cinquefoil**, *see* Cinquefoil, Marsh
- Marsh elder**, 14-5161-62
Picture, 14-5161
- Marsh-hens**, birds, 14-5020
- Marsh-locks**, Purple, plant, 19-6934
- Marsh marigold**, plant, 16-5728; 17-6276, 6278
Picture and notes, 16-5729
Picture (in color), 16-5881
- Marsh pennywort**, *see* Pennywort, Marsh
- Marsh pinks**, or Sabbatias, 14-5165
- Marsh red-rattle**, *see* Red-rattle, Marsh
- Marsh trefoil**, *see* Buck-bean
- Marsh-violet**, plant, 16-5728
Picture and note, 16-5729
- Marsh woundwort**, *see* Woundwort—marsh
- Marshall, Thomas R.**, vice-president of U. S.
Picture, portrait (gravure), 11-3948
- Marshall Islands**
Japan took from Germany, 9-3302
sailing trips of natives, 9-3300
shown on map, 9-3294
whalers gave diseases to natives, 9-3302
- Marshallias**, plants, 19-7095
Picture, 19-7095
- Marshallsea**, debtors' prison
Dickens family lived there, 8-2731-32
- Marshes**
difficult for plant life, 1-330
* flowers of, with pictures, 16-5727-34
- Marshmallow**, plant, 14-5158, 5161
Picture, 14-5161
- Marshmallows**, candy, recipe, 11-3856
- Marshwort**, plant
Picture, procumbent marshwort (in color), 16-5884
- Marston Moor, Battle of**. Fought in 1644. Scots and Parliamentarians besieged York, and Royalist forces marched to its relief under Prince Rupert. Cromwell and his Ironsides turned the tide, and 3,000 of the 18,000 Royalists were slain. The victors entered York.
See also 11-3846
- Marsupials**, class of animals
characteristics, 7-2501-02
- Marsupium**, pouch of certain animals, 7-2501
- Marsyas** in mythology, 9-3237
- Martel, Charles**, *see* Charles Martel
- Martello tower**. Small round fort of solid masonry surmounted by a gun platform. The original Martello tower was situated in the Gulf of San Fiorenzo, Corsica, and was named for its inventor. They were erected in large numbers along the south coast of England as part of the coast defenses against Napoleon's threatened invasion, and many of them remain.
- Marten**, animal, 3-872
Pictures, 3-869, 870; 13-4698
- Martial**, Latin poet, quotations from, 16-5913
- Martial Law**. Law administered by the military power of government which has taken the place of the civil government in time of war or other exigency.
- Martin**, St. (c. 316-400). Roman soldier who, after giving half his cloak to a beggar, had a vision of Our Lord, and was baptized in 356. He afterward became Bishop of Tours, and is said to have made many converts and worked miracles. His tomb is still visited by pilgrims. The patron saint of infantrymen.
- Martin, David**, and Henry Raeburn, 7-2330
- Martin, Homer D.**, American painter, 10-3448
Pictures
Harp of the Winds, also called View on the Seine, 10-3447
Sand Dunes (gravure), 10-3450
- Martin, T. Mower**, Canadian painter, 10-3702
- Martineau, Robert**, artist
Picture, Last Days in the Old Home, 8-2681
- Martini, Simone**, *see* Memmi
- Martinique**, island in West Indies, 19-7104
- Martins**, birds, 9-3285; 13-4836
Pictures, 9-3279
European house martin (in color), 9-3284
- Marvell, Andrew**, English poet
and John Milton, 4-1240
Picture, portrait (in group), 4-1237
- Marvelous reptile family**, * 14-5227-35
- Marx, Karl** (1818-83). Eminent economist and founder of modern Socialistic movement, as defined in his programme The Communist Man-
- Marx, Karl** (continued)
itesto. Led a wandering life because of revolutionary activities. Great work *Das Kapital*.
- Mary I**, queen of England, 5-1817
- Mary II**, queen of England, wife of William III, 6-1381
- Mary**, queen of Hungary
Picture, portrait by Velasquez (gravure), 4-1503
- Mary of Modena**, wife of James II of England, 6-1381
- Mary Queen of Scots (Mary Stuart)**
lile, 12-4214; 5-1818, 18-0
first husband, Francis II, 10-3434
Pictures
portrait, 12-4204
portrait (gravure), 5-1821
scenes from her life, 12-4213
- Maryland**. Atlantic state; area, 12,327 square miles; capital, Annapolis. Agriculture, coal-mining and varied manufacturing are the important industries. A fertile fruit-growing district, it contains the great port of Baltimore, the largest city in the state. Abbreviation, Md. Nickname, "Old Line State" or "Cockade State." State flower, black-eyed Susan. Motto, "Fatti maschii parole femine" (Manly deeds and womanly words). Named in honor of Queen Henrietta Marie, wife of Charles I of England. First settlement, St. Mary's, 1634.
described in Northeastern States, 10-3401-08; 11-3773-82; 12-4145-54
founded, 2-550, 552
Mason and Dixon's Line, 7-2428
ratified Constitution, 20-7559
remained in Union, 7-2432
signers of Constitution, 20-7574
signers of Declaration of Independence, 20-7557
Star-Spangled Banner, origin of, 18-6512
Poem about. Maryland, My Maryland, by J. R. Randall, 15-5524
Pictures
bombardment of Fort McHenry, 6-2091
boundary stones, Mason and Dixon's Line, 12-4153
Doughoregan Manor, 12-4153
flag (in color), 19-7190
views in Baltimore, 11-3780
See also Annapolis
- Maryland, My Maryland**, song, origin of, 18-6513-14
- Marzipan**, recipes for
eggs, 10-3505
fruits and nuts, 11-3856
potatoes, 11-3856
- Masaccio (Tommaso Guidi)**, Italian painter, 2-698-99
- Masaryk, Thomas Garrigue**, president of Czechoslovakia, 17-6344
- Mascagni, Pietro**, Italian musical composer, 19-6925
Picture, portrait, 19-6912
- Masefield, John**, poetry of, 12-4233
- Maskelyne, Nevil**, astronomer, 1-284
experiment with plumb-line, 2-587
Picture, portrait, 1-281
- Maskmunge**, *see* Muskallunge
- Mason, J.**, and manufacture of steel pens, 10-3550
- Mason, James M.**, and Trent affair, 7-2434
- Mason, John**, founder of New Hampshire, 2-555
- Mason and Dixon's line**, 7-2428-30
Picture, stone markers, 12-4153
- Masonry**, *see* Concrete
- Maspero, Gaston Camille Charles** (1846-1916) French Egyptologist who could read hieroglyphics at age of 14.
- Mass**, term in physics
compared with volume, 2-386
measure of scientists, a gram, 14-4902
not same as size, 14-5086
relation to weight, 14-4903
- Massachusetts**. One of the smallest but most important states; area, 8,266 square miles; capital and largest city, Boston. Settled in 1620 by the Pilgrim Fathers, it is now a great manufacturing state, containing Worcester, Springfield, New Bedford, Fall River, Lowell, Cambridge and many other busy towns. Fishing and quarrying are important. Abbreviation, Mass. Nickname, "Bay State" or "Old Colony State." Flower, mayflower. Motto, "Ense petit

GENERAL INDEX

Massachusetts (*continued*)
 placidam sub libertate quietem" (With the sword she seeks quiet peace under liberty). Massachusetts comes from an Algonquian name meaning "big-hill-small-place." First settlement, Plymouth, 1620.
 described in Northeastern States, 10-3401-08;
 11-3773-82; 12-4145-54
 early settlements
 Bay Colony, 2-548, 550, 554, 555
 Plymouth Colony, 2-548, 555
 Plymouth Company, 2-544
 first canal in United States, 13-4787
 Indian troubles, 3-778-79
 in Revolution, 4-1162-64
 Lexington and Concord, battles of, 4-1163-64
 presidents from, 6-1916; 8-2676
 ratified Constitution, 20-7559
 signers of Constitution, 20-7574
 signers of Declaration of Independence, 20-7556
Pictures
 Alden house, 2-547
 Boston Massacre, 4-1160
 Boston
 Faneuil Hall, 18-6832
 Mother Church, 14-5266
 Old North Church (gravure), 18-6685, 6830
 Old State House, 18-6832
 Paul Revere's house, 18-6832; grave, 18-6834
 State House, 11-3782; (gravure), 18-6685
 Trinity Church (gravure), 18-6686
 Brockton, air view, 11-3781
 Capen house, Topsfield, 3-967; (gravure), 18-6685
 cotton mill, 14-5174
 East Point, Nahant, 12-4151
 fishing boats, 11-4056, 4058, 4060
 flag (in color), 19-7190
 Harvard University, 12-4306
 Hart house, Ipswich, 2-547
 John Harvard's grave, 12-4150
 Lexington and Concord, 4-1163, 1174; 18-6834
 Mayflower at anchor, 2-545
 Mt. Holyoke College, 14-5266
 Plymouth, views of, 2-542; 12-4446; 18-6827
 Salem houses, 12-4151
 Smith College, Emerson House, 12-4313
 Springfield, views of, 11-3779
 Wayside Inn, South Sudbury, 12-4151
 Wellesley College, 12-4313
 wharves in Boston and Gloucester, 12-4147
Massachusetts Bay Colony, 2-548, 550
 founding and character, 2-554
 growth of, 2-555
Massachusetts General Hospital
 first hospital to use anesthetics, 8-2729
Massacre of St. Bartholomew's Day, 10-3434, 3436
"Massif Central" central highland of France, 11-3814, 3816
Massys, Quentin, *see* Matsys, Quentin
Mastabas, Egyptian tombs, 14-5211
Master of the people's songs, * 6-2135-38
"Master Stephan" *see* Lochner, Stephen
Masterman Ready, by Marryat, summary and quotations, * 18-6757-66
Masters, Edgar Lee, author, 14-5013
See also Poetry Index for poem and note
Mastiffs, dogs, 2-718
Picture (gravure), 2-713
Mastodon, prehistoric animal
 hoax connected with discovery, 5-1784
Picture, 1-93
Picture and note, 18-6617
Masts of ships, description, 11-4086-87
 battle mast on battleship, with picture, 18-6819
 of clipper ships, 11-3919-20
 role of, 14-5004
Question about, Why does a mast taper toward the top? 3-1115
Mat, Wool, directions for making, 6-2265-66
Mat grass, note and picture, 10-3663
Matabele, African tribe, and the Boers, 9-3048
Matador, domino game, 12-4375
Matches
 history and manufacture, 19-6965-74
 invention and improvements, notes and pictures, 1-369
 tricks with, 10-3767-68

Matches (*continued*)
Questions about
 Why does a match flare up when turned upside down? 14-5087
 Why does a match go out when we blow it? 3-980
 Why does a match strike? 1-307
Pictures, manufacture, 19-6966-73
Maté, beverage, 7-2536
Materfamilias, Latin for "mother of the family."
Materialism, opposed by Plato, 16-5918, 5920
Materials. Here is the tensile strength, or resistance reckoned in pounds per square inch which various materials offer to separation. Their strength varies enormously.

Metals	Lbs.	Metals	Lbs.
Aluminum cast- ing.....	15,000	Chrome nickel	
Aluminum wire.....	50,000	vanadium steel	129,100
Aluminum bars..	28,000	Manganese steel	
Nickel aluminum	40,000	(cast).....	90,000
Aluminum bronze	70,000	Manganese steel	
Manganese bronze	60,000	(quenched)...	140,000
Phosphor bronze.	46,000	<i>Woods</i>	
Tobin bronze.....	66,000	Ash.....	14,000
Bronze gun metal	35,000	Black walnut..	12,000
Platinum wire... 32,000		Beech.....	14,500
Tin.....	3,500	Cedar.....	10,000
Gold (cast).....	20,000	Chestnut.....	10,000
Silver (cast).....	40,000	Elm.....	13,400
Lead.....	2,000	Hemlock.....	8,700
Zinc.....	5,400	Hickory.....	15,000
Brass (cast).....	24,000	Locust.....	22,000
Copper (cast)....	24,000	Lignum vitae... 11,000	
Soft copper wire	35,000	Maple.....	10,500
Hard copper wire	60,000	White oak.....	14,500
Cast iron.....	20,000	Live oak.....	13,000
Cast steel.....	60,000	Poplar.....	7,000
Wrought iron....	50,000	Redwood.....	8,500
Carbon steel....	60,000	Spruce.....	14,500
Nickel steel.....	80,000	White pine....	12,000
Steel for bridges.	60,000	Yellow pine....	11,000
Vanadium steel..	70,000	Red fir.....	10,000
Vanadium steel..	100,000	Yellow fir.....	12,000
		Teak.....	14,000

Mather, Cotton, wrote ecclesiastical history of New England, 12-4447
Picture, portrait, 12-4445
Matilda, daughter of Henry I
 land granted to Reading Abbey, 5-1566
 struggle for English crown, 5-1563
Matilda, wife of Henry I, *see* Maud
Matisse, French painter, 8-2712
Matronalia, Roman festival of Juno, 9-3226
Matsys, Quentin, Flemish painter, 4-1226-27
Pictures
 Portrait of Bishop Gardiner, 4-1223
 Virgin and Child, 4-1223
Mattathias, Jewish priest and patriot, father of the Maccabees; died, 167 B.C.
Matter
 * How elements are built up, 12-4289-92
 * Transformations of matter, 12-4403-06
 * Wonder of matter, 12-4155-59
 nature of matter, considering electrons, 12-4159
 relation to ether and electrons, 13-4666-67
 three states: solid, liquid, gaseous, 12-4157-58
See also Atoms; Ether; Chemistry; Gravitation
Question about, Do we know any kind of matter not found on earth? 14-5084
Matterhorn, Swiss mountain, note and picture, 16-5999
Matthias Corvinus, Hungarian king, son of John Hunyadi; born, 1440; died, Vienna, 1490; reigned from 1458.
Matthisson, Friedrich, wrote Adelaide, 10-3612
Mattress for outdoors, directions for making, 12-4376
Question about, Why does a mattress have leather buttons? 15-5620
Maud (or Matilda), wife of Henry I, 5-1566
Maud, ship of Amundsen, 13-4722
Maughan, Lieut. Russell L., aviator, 1-178-80
Maui, one of Hawaiian Islands, 15-5448
Maua Loa, volcano, Hawaii, 7-2290
 Christian convert defied Pe-le on, 2-446
Picture, 2-446
Maupassant, Guy de, French novelist, a great master of the short story; born, Château de Miromesnil, Normandy, 1850; died, Passy, Paris, 1893.

GENERAL INDEX

- Mauretania**, steamship. *Pictures*, 12-4415; 17-6403
- Mauritius**, British possession, 9-3182, 3184
- Maury, Matthew Fontaine** (1806-73). American naval officer, born in Virginia; noted for his work on ocean currents; entered Confederate navy in 1861; professor Virginia Military Institute.
- "Father of the Naval Academy," 13-6703
- Mausoleum**, origin of word, 7-2604
- Mausolus, Tomb of**, 7-2604; 12-4331-32
- Picture*, reconstruction (gravure), 7-2605
- Mauve, Anton**, Dutch painter, 8-2853
- Pictures*
- The Meadow, 8-2853
- Spring, 8-2853
- Mawson, Sir Douglas**, life and explorations, 14-5093-94
- Pictures*, portrait, 14-5089
- antarctic scenes, 14-5097
- Maxim, Sir Hiram**, attempted invention of airplane, 1-172
- Maximilian**, emperor of Mexico, 19-7138
- Maximilian I.** German king and Holy Roman Emperor; born, Vienna, 1459; died, Wels, Upper Austria, 1519; reigned from 1493.
- character, 11-3963
- Picture*, receiving ambassador, 11-3961
- Maximilian II.** German king and Holy Roman Emperor; born, Vienna, 1527; died, 1576.
- Maximin II.** or **Maximinus, Galerius Valerius**. Roman emperor and general; born in Illyria; reigned A.D. 308-314.
- Maximinus Thrax**. Roman emperor, 235-38; Maximinus I. or Maximin, Gaius Julius Verus, called Thrax (the Thracian).
- Maximum thermometer**. One that registers by a small indicator the highest temperature recorded.
- Maxwell, James Clerk**, *see* Clerk Maxwell. James May. The fifth month of the year, named for the goddess Maia; containing 31 days.
- May**, poetic name for English hawthorn, 12-4393
- May basket, Paper**, how to make, 2-750
- May-pinks**, or arbutus, 13-4775-79; 17-6274
- Picture*, 13-4779
- May rose**, name for Guelder rose, 14-4972
- Mayas**, early race in Central America, 19-7134
- Mayflies**, 17-6067
- Mayflower**, Canada, 17-6280
- Mayflower**, ship
- carried Pilgrims to Plymouth, 2-548
- children born on, 3-965
- Pictures*, 2-545
- signing the Mayflower Covenant, 7-2525
- Mayflower**, *see* Arbutus; Hepaticas
- Maynard, John**, heroism of, 17-6137-38
- Mayo**. Rugged western county of Ireland; area, 2,158 square miles; capital, Castlebar.
- Mayor**. The chief executive of a municipality; used in England, Ireland and the United States and other countries settled by the English. In early Frankish history the mayor of the palace was the chief officer of the royal household.
- Mazarin, Cardinal Jules**. French statesman, the successor of Richelieu; born, Piscina, Italy, 1602; died, Vincennes, 1661.
- Maze**, puzzle, 17-6258
- Mazuyer**, surgeon, hoax about mastodon, 5-1784
- Mazzini, Giuseppe**, Italian patriot, 13-4588, 4590
- Pictures*
- portrait, 13-4583
- portrait, with mother, 15-5617
- in prison, 13-4589
- Meade, George Gordon** (1815-72). American soldier, born in Spain. He graduated from West Point, served in Mexican War and during whole of Civil War. After June, 1863, he commanded Army of Potomac.
- at Gettysburg, 7-2436
- Picture*, portrait, 7-2437
- Meadow grass**, leaves of, 10-3526
- Picture*, 10-3525
- Pictures*, with notes, 10-3660, 3662, 3664
- Meadow honeysuckle**, *see* Clover
- Meadow-larks**, birds
- account of, 13-4829; 14-5137
- in southern U. S., 14-5023
- Picture*, 13-4833
- Meadow-rue**, herb, 16-5728-29
- alpine, description, 15-5602, 5605
- Pictures*, 16-5729
- alpine meadow-rue, 15-5605
- yellow meadow-rue, flower (in color), 16-5881
- Meadow-sweet**, bush, 16-5732
- flower, description, 16-5876
- note on, 16-5873
- Picture*, 16-5873
- Mealies**. South African name for edible part of Indian corn; principal food of South African natives.
- Measure for Measure**, by Shakespeare
- story of, 16-5755-56
- Picture*, 3-982
- Measurements, Electric**, *see* Electric measurements
- Measures**, *see* Weights and measures
- Measuring**
- of streams, directions for, 19-7081
- of tree, directions for, 17-6115
- See also* Weights and measures
- Questions about**
- How can we measure a whole country? 16-5742
- How did men find out the earth's circumference? 16-5742
- Meat**, food
- * Meat as a food, 7-2567-69
- argument about eating, 7-2567-68
- in United States, 9-3207, 3209
- use by children, 7-2568-69
- Pictures*
- Chicago plant, 19-7109
- stockyards, Kansas City, 15-5277
- Meat industry and trade**
- by-products of meat, 7-2513
- meat preparation in stock-yards, 7-2512-13
- Meath**. County of Leinster, Ireland; area, 906 square miles; capital, Trim.
- Meaux**. Old French city on the Marne, 28 miles northeast of Paris, with a splendid Gothic cathedral. It has manufactures of steel and textiles and a large agricultural trade.
- Mecca**. Moslem holy city, capital of the Hedjaz, Arabia. The birthplace of Mohammed, it contains the mosque in which is the sacred Kaaba, visited annually by vast numbers of pilgrims.
- supreme goal of Mohammedans, 18-6675.
- Picture* of Kaaba at, 18-6673
- Mechlin**, or **Malines**. Ancient Belgian city, famous for its lace. The splendid cathedral covers nearly two acres, while there is a medieval town hall and cloth hall. The railway shops are important.
- Mecklenburg County, N. C.**
- declaration of independence, 4-1164
- Medea**, Greek sorceress
- helped Jason get Golden Fleece, 3-1101
- Media**, ancient kingdom, 3-912
- conquest of Assyria, 2-658-59
- Medici, Lorenzo de, the Magnificent** (1449-92)
- One of the most famous members of the celebrated Florentine family; patron of scholars and artists.
- Medicine**, history of
- * Computers of disease, 15-5481-93
- * World's great doctors, 8-2721-30
- First western doctor in U. S., 14-5271
- studies of Hippocrates, 2-702
- Medicine Man**. Among the Indians a man who professes to cure sickness, drive away evil spirits, and control the weather by the use of "medicine," that is to say, magical power.
- Medicine plants**, * 8-2909-13
- Medicines**, from plants, * 8-2909-13; 5-1626
- See also* Drugs
- Pictures*, plants producing (in color), 8-2999
- Medicis, De**
- family of, 12-4416
- Catherine, 10-3434, 3436
- Marie, 5-1784; 10-3436
- palaces of, 17-6298
- tombs of, 13-4608
- Pictures* (gravure), 3-963; 5-1743, 1745; 13-4615
- Medick, Black**, fodder-grass, 7-2412
- Medina**. Burial-place of Mohammed, and terminus of the Hedjaz Railway, Arabia. After Mecca it is the holiest Moslem city.
- See also* 18-6675
- Medina-el-Zamra**, near Cordova, 9-3356
- Mediterranean Sea**. Largest and most important United sea, the cradle of European civilization. It contains the Tyrrhenian, Ionian, Adriatic and Aegean seas, and is roughly divided into three basins, the eastern of which is known as the Levant. The Nile is the only great river

GENERAL INDEX

Mediterranean Sea (continued)

that flows into it, but there are many large and important islands, notably Corsica, Sardinia, Majorca, Sicily, Corfu, Crete, Cyprus, Rhodes, Malta, the Cyclades and Sporades. Among the greatest ports are Valencia, Barcelona, Marseilles, Toulon, Genoa, Leghorn, Naples, Palermo, Catania, Messina, Venice, Trieste, Piræus, Salonica, Smyrna, Beirut, Alexandria, Tunis and Algiers. The Mediterranean connects with the Atlantic by the Strait of Gibraltar; with the Sea of Marmora by the Dardanelles; and with the Red Sea by the Suez Canal.

Medlars, trees

Pictures, fruit, 6-2063; (in color), 11-4024

Medulla oblongata in brain, 8-2840

Medusa, a Gorgon, account of, 9-3236

Picture, ancient mask of, 3-1073

Meer, Jan van der, see Vermeer, Jan (Johannes)

Meerkat, animal. *Picture*, 2-496

Meerut, Military centre in the United Provinces, India. Here the Indian Mutiny of 1857 broke out.

Meighen, Arthur, premier of Canada, 4-1491

Meissen. Home of the Dresden china industry, on the Elbe, in Saxony. An important place in the Middle Ages, it has one of the loveliest Gothic cathedrals in Germany.

Meissonier, Jean Louis Ernest, French painter, 6-2082

Pictures

Napoleon at battle of Friedland, 10-3569

Napoleon at the head of his troops (gravure), 6-2212

Mekong, or **Cambodia**. Great Asiatic river, though generally too rapid for navigation. Rising in Tibet, it flows past Saigon, Cochin China, into the China Sea, 2,800 miles.

Melanesia, part of Oceania, 9-3302

map, 9-3294

meaning of name, 9-3295

Melbourne, Australia, 7-2466, 2468

Melchers, Gari, American painter, 10-3455

Picture, Mother and Child (gravure), 10-3464

Melic, grass. *Picture*, 10-2525

Melilot, plant, note and picture, 15-5393

Mellifont Abbey

Picture, Norman baptistery, 8-2942

Mellville, David, first American to use gas-light, 3-993

Melons

muskmelons, 6-2062

watermelons, account of, 6-2062

Pictures, 6-2059

muskmelon, 6-2063

Melpomene, muse of tragedy, 9-3228

Melting

Question about. How does salt melt snow? 12-4505

Melting-point of various substances, 8-3014

Melville, Herman, author, 13-4629

books about Marquesa Islands, 9-3304

* **Moby Dick**, quotations and summary, 15-5401-08

note on, 15-5401

Membrane. A thin soft layer or sheath of animal or vegetable tissue. Animal membranes are of three kinds: mucous, lining the cavities communicating externally with the skin, as the mouth and the intestinal canal; serous, lining visceral cavities, as the pleura and the joint cavities; fibrous, as the sheaths of tendons and bones.

Memel. Port of Lithuania, exporting grain, flax, timber, linseed and fish.

Memling, Hans, Flemish painter, 4-1225

Pictures

Death of St. Ursula, 6-1993

Marie Portinari, 4-1228

Portrait of an Old Man, 4-1228

St. Benedict, 6-1996

Thomas Portinari, 4-1228

Virgin and Child, 4-1224

Menni, Simone Martini, Italian painter, 2-697

Picture, Angel of the Annunciation (gravure), 2-696

Memnon, Singing, statue near Thebes

Picture, 3-819

Memorial Day, 5-2092

Memory

* account of, 11-4067

* How to remember poetry, 2-735

brain cells and, 16-5957

Memory (continued)

Poems about

I Remember, I Remember, by Thomas Hood, 3-845

Memory, by T. B. Aldrich, 12-4348

Questions about

Why do we forget some things and remember others? 8-2720

Why do we forget what happened when we were babies? 16-5740

Memphis. Chief commercial city of Tennessee, on the Mississippi, with an active trade in cotton, lumber, live stock and hardwood.

Picture, port of, 16-5657

Men of the northern sea-gates, * 8-2977-89

Men who gave us light, * 3-989-96

Men who gave us schools, * 14-5247-54

Men who made the railways, * 5-1611-18

Men who mapped the skies, * 1-279-88

Ménard, René, French painter, 8-2856

Mencius. Chinese philosopher, writings, 15-5466

Mendaña de Neyra, Alvaro, discovered Solomon Islands, 9-3304

Mendel, Gregor Johann, and heredity, 12-4492

law of heredity, 15-5614

illustrated in fox-breeding, 13-4694

Mendeleef, Dmitrii Ivanovitch, and grouping of elements, 12-4291

Mendelssohn, Moses, Jewish leader, 19-7160

Picture, portrait, with note, 19-7161

Mendelssohn-Bartholdy, Felix, German musical

composer, 19-7076

* life and work, 19-6922

Picture, portrait, 19-6912

Mending

of clothing, see Sewing—mending

of various objects, directions, 13-4737

Mendonça, Henrique Lopez de, see Lopez, in Poetry Index

Mendoza, Diego Hurtado de, Spanish author, 19-7127

Picture, portrait, 19-7125

Mendoza, Pedro de, founded Buenos Aires, 19-6862

Menelaus, king of Sparta, 6-1983

Menéndez de Aviles, Pedro

founded St. Augustine, Florida, 1-246

killed Huguenot colonists, 1-246

Menes, king of Egypt, 3-814

Mengo, native capital of Uganda, 9-3054

Menhaden, fish, 16-5776

Menkaura (or Mencheres), king of Egypt, 3-815

Mennonites. A small denomination of evangelical Christians called after Menno Simons (1492-1559) of Friesland. Their creed contains the usual evangelical doctrines. They reject infant baptism, accept only offices connected with the management of schools, intermarry only with members of the faith, and do not resist violence.

Menopoma, animal. *Picture*, 15-5457

Mens sana in corpore sano. Latin for "a sound mind in a sound body."

Mental disease, see Insanity

Menthol, from peppermint, 8-2996

Mentone. Health resort on the French Riviera, among orange and lemon groves.

Menzel, Adolph Friedrich Erdmann von, German painter, 8-2852

Mercantini, Luigi, see Poetry Index for poem and note

Mercator (1512-94). A Flemish geographer who did much work for the Emperor Charles V during his campaigns. Famous for his projection, used in nautical maps, in which the meridians are represented by parallel lines and the parallels of latitude cut the meridians at right angles.

Merchant of Venice, play by Shakespeare

criticism, 3-836

story of, 8-2688

Picture, 3-833

Mercury (Hermes), god, 9-3227

Pictures, statues (gravure), 12-4335; 13-4609

Mercury, metallic element, see Quicksilver

Mercury, planet

account of, 9-3289-92

distance from sun and length of year, 9-3180

Pictures, 9-3286

diagram of orbit, 9-3290

imaginary view of surface, 9-3293

Mercury arc lamp. Electric lamp in which light comes from an arc formed in mercury vapor in a vacuum tube.

GENERAL INDEX

Mercy

Poem about. Quality of Mercy, from Shakespeare's Merchant of Venice, 11-3932

Mer-de-glace, glacier

Picture, 11-3819

Meredith, George, English poet and novelist, 11-3896

poetry of, 12-4231

Picture, portrait, 11-3891

Meredith, William T., see Poetry Index, for poem and note

Merezhkovski, Dmitri, Russian author, 19-6908

Mergansers, ducks, 11-3890

Pictures, 11-3887

red-breasted merganser (in color), 9-3284

Mergenthaler, Ottmar, inventor of linotype machine, 3-1060

Picture, portrait, 9-3383

Merida, Capital of Yucatan, Mexico, 24 miles from the port of Progreso. Founded in 1542, it has a 16th-century cathedral, while near by are remarkable ruins of the Maya civilization.

Merida, Spanish city in the province of Badajoz, famous for its Roman remains, including a bridge of Trajan, 2,575 feet long.

Meridians, explanation, 1-19

Mérimée, Prosper. French novelist, essayist, historian and literary critic; born, Paris, 1803; died, Cannes, 1870.

Merino sheep, 4-1376; 15-5576

Picture, 4-1373

Merlins, falcons, 10-3756

Pictures (grave), 10-3763; (in color), 9-3281

Mermaid Tavern

Picture, Evening at Mermaid Tavern, 2-723

Mermals

account of, 1-358-59

explanation of, 6-2213

Mermen

account of, 1-358-59

story of forsaken one, 1-59

Poem about. Forsaken Merman, by Matthew Arnold, 8-3001

Merrimac, ship, 7-2434

Picture, battle with Monitor, with note, 7-2435

Merriman, Seton, pseudonym of H. S. Scott, 11-3898

Merry Wives of Windsor, play by Shakespeare

Picture, 3-841

Mersey. River of Lancashire and Cheshire on which stand Liverpool and Birkenhead, besides Stockport, Warrington, Widnes, Runcorn, Wallasey, Bootle and New Brighton. Flows from the Peak of Derbyshire into the Irish Sea.

Mertz, Xavier, antarctic explorer, 14-5094

Mesa Verde National Park, Colorado, description, 7-2290

Picture, Cliff Palace, 7-2286

Mesdag, Hendrik Willem, Dutch painter and collector, 8-2854

Picture, Beaching Dutch Boats (grave), 8-2864

Mesha. Moslem holy city in northeast Persia.

Mesmerism, trick with chair, 7-2651

Mesophytes, class of plants, 16-5727

Mesopotamia

explorations in ruins, 2-648

* history, 18-6669-72

* history and meaning of name, 2-647-60

See also Assyria; Babylonia; Iraq

Mesozoic age, geological era, 2-634

Mesquite. A low-growing tufted grass occurring upon the ranges in the West and Southwest of the United States. It makes excellent fodder and is valuable for grazing.

Picture, 13-4641

Messiah, oratorio by Handel, 19-6914, 7072

Messina, Antonello da, see Antonello da Messina

Messina. Third city of Sicily, with manufactures of muslin, linen and silk, and a considerable export trade. A great part of the city, including the ancient cathedral, was destroyed in the earthquake of 1908.

Mestrovic, Ivan, Jugo-Slavic sculptor, 13-4858

Metallurgy. The art or science of preparing metals for use from their ores by separating them from mechanical mixture and chemical combination. Includes smelting, amalgamation, refining, etc.

Metals

Questions about

How did all the metals get into the earth?

19-7246

Metals—Questions about (continued)

Why do metals let light through when beaten thin? 5-1750

See also Minerals; Mines and mining

Picture, Japanese metal working, 2-571

Metamorphosis, of insects, 17-6066

Metaphor. A figure of speech whereby a word or phrase denoting one kind of idea is applied to another by way of suggesting a likeness between them: a shower of blessings; the message winged its way.

Metaphysics. A branch of philosophy which treats of ultimate reality. There has been much difference of opinion among thinkers as to the scope of the subject, but most agree upon its investigations as to the nature of being.

Metaurus, Battle of the. Fought in 207 B.C. in the Second Punic War at the Metaurus River in Umbria. The Romans defeated the Carthaginian army which Hasdrubal was bringing to the aid of his brother Hannibal.

Metcalf, Willard, American painter, 10-3456

Metcalfie, Sir Charles, governor-general of Canada, 4-1486

Metchnikoff, Elias, scientist

discoveries, 15-5488

Picture, portrait, 15-5481

Meteoric hypothesis of Lockyer, 1-286

Meteorites, see Meteors

Meteorograph. Device for recording on one sheet various meteorological readings, such as air pressure, wind pressure and temperature.

Meteorology, science, definition of, 18-6691

Meteors

* account of, 10-3671-72

diamond crystals in meteorites, 2-458

largest known, 10-3672

Picture, meteorite found by Peary, 10-3671

Meter, measure of distance, 14-4902

Meters, Electric, see Electric meters

Methuen, Treaty of, 14-5186

Metric system, account of, 14-4902

Metropolitan Museum of Art, New York city, 17-6216, 6218

American wing, notes and pictures, 18-6776

collections of Cretan, Mycenaean and Greek art, 2-451

founding, 9-3334

models from Egyptian tombs, 3-810

Picture, 17-6215

Metsyn, Quentin, see Matsyn, Quentin

Metternich, Clemens Wenzel Nepomuk Lothar, Prince (1733-1859). An eminent Austrian statesman who guided the fortunes of his country during the Napoleonic Wars, and after the Congress of Vienna became the leading statesman of Europe. He stood for all that was reactionary in the period that followed until the revolutions of 1848 forced him to take refuge in England. He returned, but not to take office.

Metz, Alsace-Lorraine, note and picture, 10-3438

Metz, Battle of, 11-3672

Meum et tuum. Latin for "mine and thine."

Mennier, Constant, Belgian sculptor, 13-4858

Meuse. River of France, Belgium and Holland draining nearly 13,000 square miles. It rises in the Langres plateau and passes Verdun, Sedan, Dinant, Namur and Liège, joining the Rhine at Gorcum. The region through which the Meuse runs was a noted battle-ground during the World War. 500 miles.

Mexican War, 1846-48, 6-1918, 1920; 19-7138

brief summary of, 11-3940

Mexico. Southern republic of North America; area, 770,000 square miles; capital, Mexico City. The climate and vegetation vary widely, the low-lying coastal regions being tropical and unhealthy, while the central plateau is generally dry and pleasant. The mineral and agricultural resources are very great, silver-mining, especially, having been important since the 16th century; of late years there has been an immense production of petroleum. Iron, copper, lead, zinc, sulphur, quicksilver, platinum and salt are found, and vegetable products include medicinal plants, indiarubber, dyewoods, fruit, sisal, sugar, coffee, cocoa, rice, indigo, cotton, corn and tobacco. Guadalajara, Puebla, San Luis Potosi and Monterey are important towns; Vera Cruz and Tampico are ports. Once the seat of the Toltec and Aztec civilizations, Mexico was conquered by Cortes in 1519, remaining Spanish up to 1821.

GENERAL INDEX

Mexico (continued)

description, 19-7131, 7134, 7136
 history (arranged chronologically)
 conquest by Cortes, 1-241; 19-7132-33
 under Spanish rule, 19-7134, 7136
 relation with Napoleon III, 10-3573
 after independence was established,
 19-7136-42
 war with U. S., *see* Mexican War
 map, 19-7133
 national hymn, 17-6255
 natural resources, 19-7134, 7136
Pictures, various scenes, 19-7141
Mexico City, Capital of Mexico, founded by
 Cortes in 1521 on the site of the Aztec capital,
 Tenochtitlan. In a beautiful valley of a lofty
 plateau, it has a fine climate and many notable
 buildings, including the 16th-century cathedral.
 Textiles and cigarettes are manufactured.
Pictures, 19-7135, 7139
Meyer, Lothar, and grouping of elements,
 12-4291
Meyerbeer, Jacob, German musical composer,
 19-6924
Meynell, Alice, *see* Poetry Index for poems and
 notes
Mezereum, *Picture*, fruit (in color), 11-4922
Miami, Florida
 water front, note and picture, 13-4527
Mica. An important rock-forming mineral
 found in thin sheets or flakes. In large sheets
 it is valuable for use in place of glass as, in
 thin layers, it is transparent. Ground mica is
 used as a lubricant and in making fireproof
 paint. Mica is used in quantity as an insulator
 in electrical work. White mica is called mus-
 covite; light brown mica is called phlogopite,
 and dark brown or black mica is called biotite.
 The province of Quebec contributes most of the
 world's mica.
Mica-schist, rock, description, 17-6386
Mice
 * account of, 3-1133-34
 Australian, 7-2599
 fables about, by Aesop
 The cat and the mice, 13-4752
 The town mouse and the country mouse,
 4-1342
 toy, how to make, 6-2266
Poems about
 Lion and the Mouse, by Jeffreys Taylor,
 3-1129
 Mouse and the Cake, by Eliza Cook, 13-4743
 To a Mouse, by Robert Burns, 3-1008
 Young Mouse, by Jeffreys Taylor, 3-844
Pictures, 1-257; 3-1130
Michael, tsar of Russia, founder of Romanoff
 dynasty, 16-3092
Michaelmas Day. Feast of St. Michael and All
 Angels, September 29.
Michelangelo Buonarroti, Italian artist
 * life and work, 3-830-31; 13-4607-08
 architectural work, 17-6310
 David, statue of, in Florence, 5-1735, 1740
 independence in art, 9-5669
Pictures
 portrait, 1-61
 Creation of Adam, Sistine Chapel, 3-820
 David, statue of (graveure), 1-65, 68; 5-1742
 Fettered slave, statue (graveure), 13-4612
 figures from Sistine chapel, 3-823, 827
 figures on Medici tombs (graveure), 5-1743
 Holy Family, Uffizi Gallery, Florence, 3-827
 Lorenzo de Medici, statue (graveure), 13-4615
 Madonna, with Christ and St. John, bas-relief
 (graveure), 13-4613
 Moses, statue of (graveure), 13-4613
 The Pieta sculpture (graveure), 13-4613
 Sistine Chapel, *see* Illus. 3-822
 Three Fates, 3-826
 Victory, statue of (graveure), 1-71
Michelson, Albert A., physicist, note and por-
 trait, 19-7166
Michigan. State bordering the Great Lakes;
 area, 57,980 square miles; capital, Lansing;
 largest city, Detroit. Iron, copper and coal are
 its chief mineral products; agriculture, lumber-
 ing and grazing are important. Automobile
 manufacturing is the most important industry,
 but there are many others. Abbreviation,
 Mich. Nickname, "Wolverine State" or "Auto
 State." Flower, apple blossom. Motto, "Si
 quereris peninsulam amicum circumspice" (If

Michigan (continued)

thou seekest a beautiful peninsula, behold it
 here). The name Michigan is an Indian word
 meaning "big lake." First settlement, Sault
 Ste. Marie, 1668.
 described in North Central states, 15-5273-84;
 17-6037-48
 history
 included in Northwest Territory, 6-1908
 made a state, 6-1916; 11-3939
 leads in production of motor cars, 17-6046
 life of Henry Ford, 19-7208, 7210
 products
 copper, 9-3208; 17-6038
 fruit, 8-2680; 15-5284
 lumber, 8-2680
 salt, 17-6040
Pictures
 Detroit, views in, 17-6041-42
 flag (in color), 19-7190
 St. Mary's River, 6-1961; 15-5283
 University, Hill Auditorium, 12-4315
Michigan, Lake. One of the Great Lakes, the
 only one lying entirely within the United States.
 307 miles long and 118 miles broad, it covers
 22,400 square miles, its northern half being
 covered with ice in winter. A huge shipping
 trade is done in summer by the cities of Chicago
 and Milwaukee on its western shore. It is the
 third largest fresh-water lake in the world.
Michigan, University of
Picture, Hill Auditorium, 12-4315
Milcinski, Polish hero, 13-4680
Microbes
 * description, 2-437-39, 557-58
 and milk, 2-557-58; 7-2326; 17-6174
 blood contains substances poisonous to, 3-939
 destroyed by white blood cells, 3-935-36
 harmful kinds, 2-558
 in wounds, Lister's discoveries, 15-5483-85
 Pasteur's discoveries, 15-5482-83
 spread disease, 8-2872
 in hay cause fire, 14-4949
 killed by hypochlorite of soda, 15-5493
 Koch's discoveries, 15-5486
 live on other living things, 2-438
 necessary to dispose of waste, 2-439
 rate of multiplication, 2-438
 single cells, 2-437-38
 vegetable rather than animal, 2-438
Question about. Are microbes necessary to
 produce cream? 2-461
Pictures, 2-437, 439; 3-934
Micrometer. An instrument used with a tele-
 scope for measuring minute distances, or the
 apparent diameter of objects which subtend
 minute angles.
Micronesia, part of Oceania, 9-3300, 3302
 map, 9-3294
 name means "small islands," 9-3296
Microphone, invention of, 17-6244, 6246
Microscope
 * history and use, 13-4669-71
 compound, or double
 discovery and principle of, 13-4670-71
 use in science, 13-4671
 simple, structure of, 13-4670
Pictures
 drop of blood in, 3-805
 objects under, 13-4669-78
 peeps through a microscope, 1-218
 showing passage of light, 13-4671
Midas, story of, 16-6030
Middle Ages. A term indefinitely applied to the
 period between the fall of the Roman Empire
 and the Renaissance, that is, from the 6th to
 the 15th centuries.
 life of peasants, 5-1720
 literature, *Gesta Romanorum*, stories from,
 8-2961-62
 milling in, 8-2796, 2798
 power of Church in, 8-2843-50
See also Crusades; Feudalism; Knights
Middlemen, necessity of, 15-5590-91
Middleton, J. E., Canadian author, 14-5109
Middlings, how obtained, in flour mill, 8-2800-01
Midges, insects, 17-6419-20
Midshipman, fish with luminous spots, 11-3841
Midsummer Night's Dream, by Shakespeare
 story of, 8-2685
Pictures, 3-835, 988
Midway Island, possession of U. S., 10-3592
Mieszko, early Polish ruler, 13-4679-80

GENERAL INDEX

- Mignard, Pierre**, French painter, 5-1876
- Mignonette**, flower
Picture, wild mignonette (in color), 14-1981
Picture (gravure), 19-7174
- Mihaly**, see Munkácsy
- Mihrab**, in Mohammedan mosque, 15-5465
- Mikado**, Japanese emperor
 relation to Shogun, 2-562-64
- Milan**, Italy
 Cardinal Borromeo and the plague, 10-3466-67
 cathedral, 17-6162
 industrial centre, 13-4576
 painters, 3-1107
Pictures, 10-3467
 cathedral, 8-3011; (gravure), 17-6169
 famous buildings (gravure), 17-6302
- Mildenhall, Sir John**, ambassador to India, 8-2823
- Mildew**. A term used to cover a number of plant diseases caused by fungus parasites, as well as spots or discolorations caused by microscopic fungi on manufactured articles like leather, paper, cloth. In America mildews have been divided into two classes: true or powdery mildews (of which there are 150 species), such as rose mildew, apple mildew, bean mildew, etc.; and downy mildews, such as potato rot, lima-bean mildew, etc. Spraying with Bordeaux mixture or some other reliable fungicide is the great preventive.
- Mile**, measure of distance
 Roman and modern, 2-463
- Miles, Alfred H.**, see Poetry Index for poem and note
- Milfoil**, see Yarrow
- Militia**. Citizens enrolled as a military force for instruction, drill and discipline, but called upon for service only in times of emergency. In England they are called the *special reserve*; in Germany the *Landsturm* and *Landwehr*.
- Milk**
 * Nature's wonderful food, 7-2322-26
 and microbes, 2-557-58; 7-2326; 17-6174
 care in handling of, 10-3508-09
 churn, reason for shape, 10-3477
 condensing process, discovery of, 10-3508
 cow's milk as food, 7-2322-26
 how made into butter, 1-373
 pigeon's, 12-4285
 stain from, 6-2252
Questions about
 How does a cow make milk? 4-1452
 How does the milk get into the coconut? 16-5846
 What causes cream to form on milk? 4-1354
 Why does a crust form on boiled milk? 9-3355
 Why does boiling milk flow over the top of the saucepan? 7-2609
 Why does milk turn sour? 17-6174-75
 Why does milk turn sour in a thunderstorm? 5-1609
Picture, examining milk in a modern dairy, 7-2325
- Milk-sugar**, preparation of, 10-3420
- Milking** by machinery, 1-381
Picture, 1-381
- Milkmaid**, name for ladysmock, 17-6122
 account of, 16-5734
- Milkweed**, plant
 climbing milkweed, description, 19-7090
Picture, climbing milkweed, 19-7091
- Milkwort**, plant
 sea, 14-5162-63
Picture
 sea milkwort, 14-5163
Pictures (in color), 14-4990
 chalk milkwort, 14-4986
- Milky Way**
 description, 11-4027
 solar system, part of, 11-4027
 stars in, 11-3926
Picture, 9-3033
- Mill, John Stuart**
 and burning of Carlyle's manuscript of history of French Revolution, 9-3312
 as an author, 11-4003
Pictures
 portrait, with father, 15-5615
 telling Carlyle bad news, 9-3313
- Millais, Sir John Everett**, English painter, and Pre-Raphaelites, 6-2236
- Millais, Sir John Everett** (continued)
Pictures
 Knight at the Ford (gravure), 6-2239
 Lorenzo and Isabella (gravure), 6-2238
 Raleigh as a Boy, 5-1812
 scene from As You Like It, 3-839
- Millennium**. A period of 1,000 years. The term, which comes from the Latin, has special reference to the idea of Christ's reign on earth, but is also used in the general sense of a long period.
- Miller, Emily H.**, see Poetry Index for poem and note
- Miller, Hugh**, geologist
 contribution to science of geology, 6-2069-70
- Miller, Joaquin**, pseudonym, see Poetry Index, for poems and notes
- Miller, Patrick**, and Symington's steamboat, 17-6400
- Miller, Richard**, American painter, 10-3455
- Miller, Thomas**, see Poetry Index, for poems and notes
- Miller, William**, see Poetry Index for poem and note
- Millet, Francis D.**, American painter, and decorations at World's Columbia Fair, Chicago, 10-3452
- Millet, Jean Francois**, French painter
 characteristics of painting, 7-2371-72
Pictures
 The Angelus (gravure), 1-71
 Flock of Sheep (gravure), 7-2376
 Man with the Hoe, 8-3003
 Mother and her Children (gravure), 7-2373
 Shepherdess (gravure), 7-2373
- Millet, cereal**, 5-1613
 account of, 5-1853
Pictures, 5-1850; (in color), 8-2938
- Millibar**
Question about. What do scientists mean by the term millibar? 14-1952
- Millimeter**, measure of distance, 14-1992
- Milling (flour)**, see Flour and flour mills
- Millipedes**, account of, 16-6020
Picture, 16-6019
- Mills, Clarke**, American sculptor, 14-4936
- Mills**, see Factories; Manufactures; also names of objects manufactured
- Millstones**, 8-2796
- Milnes, Richard Moncton**, see Houghton, 1st lord, in Poetry Index
- Miltiades**, Greek leader
 and battle of Marathon, 3-1076; 13-4581
 death in prison, 13-4584
 victories, accusation, death, 2-703
Picture, portrait, 13-4583
- Milton, John**, English poet
 * John Milton and his poems, 4-1235-42
 comparison with Keats, 7-2492
 Paradise Lost, account of, 4-1246-42
 See also Poetry Index, for poems and notes
Poem about, Samuel, "London, 1802," 12-4239
 Wordsworth, 12-4239
Pictures, including portraits, 4-1234-41
 visited by Oliver Cromwell, 4-1244
- Milton, Mrs. Mary**, wife of John Milton, 4-1238
- Milvian Bridge, Battle of**, 5-1866
- Milwaukee**. City in eastern Wisconsin, on the west shore of Lake Michigan, a very attractive city. Important both as a collecting and distributing centre, and for its manufacturing enterprise. It has access to farm, mine and forest resources. The name is Indian, its old form, Milwaukee.
- leather centre, 17-6044
Pictures, 17-6045
- Mind**
 * account of, 11-4065-68
 * emotions, 12-4441-44
 instinct and reason, 1-310
 thinking in sounds, 12-4182-83
 variations, different people, 12-4181-83
 visualizing power, 12-4181
 See also Thinking
- Miner, Jack**
 * The man who loves birds, 8-2813-18
Pictures, portraits, 8-2813, 2814, 2817
- Mineral oil**, see Petroleum
- Mineral water**. Any natural water so impregnated with salts or saline substances that it has a particular flavor or a medicinal effect.
- Mineral wool**. A fibrous wool-like material, not unlike spun glass, which is made by blowing a

GENERAL INDEX

Mineral wool (continued)

powerful jet of air or steam through melted slag; used as a packing for steam pipes, as it is a poor conductor of heat.

Mineralogy, 19-7054

Minerals

- in Australia, 7-2466, 2468, 2470
- in Great Britain, 3-786
- * in United States, 9-3208-12
- See also Mines and mining, and names of minerals

Miners

- lungs become black, 4-1329
- See also Mines and mining
- Poem about, Flynn of Virginia, by Bret Harte, 6-2244
- Question about, Why are miners not killed by bad air? 2-460

Miners' lettuce, plant, description, 19-6928

Minerva, goddess, 9-3226

Picture, statue in Vatican museum (gravure), 4-1201

See also Athena

Mines and mining

- hydraulic, note and picture, 15-5433
- * in United States, 9-3208-12
- ventilation, 2-460

See also names of minerals, as Coal

For list of main articles, see 20-7631

Pictures

- gold mines, Australia, 7-2465
- coal mines, 3-793-800
- salt, 3-929

Ming dynasty, China, 2-432

Ming tombs, China, 2-432

- Pictures, marble arches, 15-5479
- stone animals guarding approach (gravure), 2-428

Miniatures, small portraits

- English painters of 16th century, 6-2000
- Picture, Cromwell, by Richter (gravure), 1-67

Minim. Unit of liquid measurement in apothecary's or wine measure.

Minivet, bird

Picture, short-billed minivet (in color), 12-4369

Mink, animal, 3-873

fur-farms for, 13-4696

Minneapolis. Largest city of Minnesota, situated on the Mississippi River at the Falls of St. Anthony in a popular lake region. The power obtained from the falls, and the grain and timber of the Northwest have made it the foremost city of the region, and the largest flour and lumber market in the world.

centre of flour industry, 9-3214

trade and industries, 15-5280

Pictures, 15-5280-81; 16-5655; 17-6048

Art Museum, 17-6048

as it appeared in 1857, 17-6048

falls of Minnehaha, 15-5281

river views, 16-5655

Third Avenue bridge, 15-5280

Minnehaha, Falls of. Picture, 15-5281

Minnesingers, of Germany, 17-6267; 19-6902

Minnesota. American North Central state containing the sources of the Mississippi; area, 84,682 square miles; capital, St. Paul; largest city, Minneapolis. It is a great grain, dairy and lumber state. St. Paul on the Mississippi and Duluth on Lake Superior are great shipping centres. Iron-mining, flour-milling and meat-packing are important industries. Abbreviation, Minn. Nickname, "Gopher State." Flower, moccasin flower. Motto, "Etoile du Nord" (Star of the North). The name of the state comes from a Sioux word meaning "sky-blue water." First settlement, Fort Snelling, 1819.

described in North Central States, 15-5273-84; 17-6037-48

made a state, 6-1922; 11-3939

produces most flour, 15-5280

produces most iron ore, 6-1936

source of Mississippi River, 16-5653

Pictures

flag (in color), 19-7190

Minneapolis, views in, 15-5280-81; 16-5655; 17-6048

open pit iron mines, 6-1934; 17-6039

ships carrying ore, 6-1937

St. Anthony's Falls, 16-5653

St. Paul, views of, 15-5281; 17-6037, 6048

state capitol (gravure), 18-6688

trees, 15-5275

Minnesota River. American river, rising in Big Stone Lake, South Dakota. Flows into the Mississippi River. 475 miles.

Minnows, fishes, 15-5634

Minorca. Second largest of the Spanish Balearic Islands; area, 290 square miles; capital, Port Mahon.

Minos, judge of the dead, 9-3238

Minos, king of Crete
palace at Knossos, 2-449

Minotaur, legend of

origin, 2-448-49

Minsk. Chief city of White Russia, trading in flax, hemp, corn, timber and leather.

Minstrels

- minnesingers of Germany, 17-6267; 19-6902
- minstrels, or troubadours, of France, 17-6149; 18-6560; 19-6902

Blondel the minstrel, story, 16-5827-30

Poems about

Lay of the Last Minstrel, by Scott, extract, 17-6377

Minstrel Boy, by Thomas Moore, 2-484

Mint. A place where money is coined by public authority. The term is derived from Moneta, a surname of Juno, in whose temple at Rome money was coined.

Mint, plant, 16-5879

Pictures, 16-5879

Pictures (in color)

- corn mint, 15-5398
- horse mint flower, 16-5881
- marsh whorled mint, 16-5884
- water-mint, 16-5883

Mint Family of plants, 13-4876

members, 16-5880

Minton's Potteries, note and picture, 5-1672

Minuit, Peter, Dutch colonial governor

and Delaware, 2-552

purchase of Manhattan Island, 2-550

Minute Men

Question about, What were the Minute Men of America? 16-5962

Miocene period, see Geology—Miocene period

Mira Ceti, star, 11-3926

Mirabeau, Comte de (Gabriel Honoré Riquetti) in French Revolution, 6-2128, 2130

Picture, portrait, 6-2127

Miracle plays, account of, 2-721

Mirage

explanation, with pictures, 5-1806

in Sahara and Syrian deserts, 18-6743

Question about, What is a mirage? 5-1810

Picture, 18-6739

Miriam, Moses' sister, ordered to watch him in his cradle on the Nile.

Mirror

how made, 18-6752

puzzles about, and answer, 8-2742, 2881

Questions about

Why do we see in a mirror things not in front of it? 4-1230

Why does a face in a mirror seem crooked? 17-6285

Misérables, Les, by Victor Hugo

* quotation and summary, 11-3861

Missionaries

from Ireland, early days, 8-2930

lives of famous

Robert Livingstone, 2-468-70

Robert Moffat, 2-467-68

Vincent de Paul, friend of the slaves, 5-1732

to Indians

Black Robe and White Heart, story, 15-5375

French, 3-778

Jesuits in South America, 19-6862

John Eliot, 18-6624

Marquette, 18-6631-34

to lepers

Father Damien, 7-2320-22

to various countries

China, 2-432-34

England

Anglo-Saxon period, 4-1430

Augustine, 8-2844

German, 11-3960

Boniface, 13-4862

Hawaii, 2-446; 10-3586

Ireland, St. Patrick, 8-2844, 2930

Japan, 16th century, 2-564

Labrador

Dr. W. T. Grenfell, 7-2496-2500

New Zealand, 7-2572

GENERAL INDEX

Missionaries—to various countries (*continued*)

Scotland
St. Columba, 8-2842, 2844
South Seas, 9-3304
Picture, first preaching of Christianity in Great Britain, 4-1431

Missions, Californian, *see* California—missions

Missions, Medical

Labrador, Dr. Grenfell's mission to, 7-2498
Mississippi. Fertile American Southern state, producing much cotton, lumber, fruit and grain; cotton-seed products are important; area, 46,865 square miles; capital, Jackson; largest city, Meridian. Abbreviation, Miss. Nickname, "Bayou State." Flower, magnolia. Motto, "Virtute et armis" (By valor and arms). The state's name is derived from two Indian words, *masi*, fish, and *sipu*, river. First settlement, Biloxi, 1699.

described in Southern States, 13-4517-28;

14-4889-4900

history

early explorers, 1-244, 248
French and Spanish claims, 1-252
French attitude after Revolution, 5-1695
land along the Mississippi, 16-5660
made a territory, 6-1910
made into a state, 6-1910; 11-3938
seceded (Jan. 9, 1861), 7-2430
Vicksburg captured, 7-2436

Pictures

along the Mississippi, 16-5659
flag (in color), 19-7190
state capitol at Jackson, 14-4898

Mississippi River

* description, 16-5653-60

decline in shipping and proposed renewal of, 17-6040, 6044

discovery by white men, 1-244

exploration by Joliet and Marquette, 18-6632-33

floods and levees, 16-5654

length, combined with the Missouri, 7-2538

map of delta, 7-2537

mud carried by, 7-2538

source, 16-5653

Pictures, 16-5653-60

Mississippi Scheme or Bubble (1716-20). Financial scheme proposed by John Law, which included sole trading rights on the banks of the Mississippi. Its object was to restore French credit, but it almost brought France to ruin.

Mississippi Valley, claimed by French, 3-778

Missouri. Rich Central state; area, 69,420 square miles; capital, Jefferson City; largest city, St. Louis. Coal-fields cover many thousand square miles; lead, copper and zinc mines are important, while great quantities of grain and fruit are produced and cattle and mule breeding are important. Manufactures are large and varied. Abbreviation, Mo. Nicknames, "Ozark State," "Iron Mountain State" or "Show Me State." Flower, hawthorn. Motto, "Salus populi suprema lex esto" (Welfare of the people is the supreme law). The word Missouri was taken from a Sioux tribe of that name. First settlement, Fort Orleans, 1719.

described in North Central States, 15-5273-84;

17-6037-48

history

claimed by French, 1-252
included in Louisiana Purchase, 5-1702-03
Lewis and Clark expedition, 5-1703
made a state, 6-1914; 11-3938
Missouri Compromise, 6-1914; 7-2428
secession prevented, 7-2432

in the Corn Belt, 15-5280, 5282, 5284

Mark Twain's country, 13-4817-18; 16-5654

mineral production, 17-6038, 6040

St. Louis, growth of, 17-6046

shoe industry, 17-6046; 18-6443

Pictures

flag (in color), 19-7190
Forest Park, St. Louis, 15-5275
Jefferson Memorial, 17-6047
St. Louis water-front, 17-6047
Longview Farm near Kansas City, 15-5276
Stockyards, Kansas City, 15-5276
Yost Farm, 15-5276

Missouri Compromise, 6-1912, 1914

Missouri Coteau, hills in Canada, 1-112

Missouri Falls, Montana, 90 feet high.

Missouri-Mississippi River, length of, 7-2538

Missouri River. Greatest tributary of the Mississippi, which it joins near St. Louis. Omaha, St. Joseph, Kansas City and Jefferson stand on it. 2,950 miles.

Mist

how formed, 8-2922

Question about. What makes the white mist at night in hot weather? 12-4504

Mistletoe, parasitic plant

account of, 1-332

life story of, with picture, 8-2870

note on, 11-4020

seed scattered by birds, 3-1086

Question about. Is mistletoe harmful to the trees on which it grows? 8-2872

Picture, fruit (in color), 11-4027

Picture and note, 1-331

Mistletoe Bough, song, story of, 10-3609

Picture about, 10-3607

Mitchell, James, and manufacture of steel pens, 10-3550

Mitchell, Silas Weir, American author, 13-4823

Picture, portrait, 13-4823

Mitchell, Mt., North Carolina, height, 1-154

Miterworts, plants, 17-6279

Mites, insects, 16-6018-20

Pictures, 16-6019

Mitford, Mary Russell, author, 11-3894

Picture, portrait, 11-3891

Mithras, religion of, 9-3234

Mitre, Bartolomé, Argentine statesman, 19-7034

Mitre-box, how to make, 17-6263

Mizar, star, 11-3924

Picture, 11-3923

Mnemosyne, goddess of memory, 9-3234

Mnesicles, Greek architect, 15-5344

Moas, extinct birds of New Zealand, 1-94; 13-4655

Moat

Picture, moated house at Groombridge, Sussex, 7-2297

Mobile, Ala., captured by Farragut, 7-2438

Moby Dick, by Herman Melville

* quotations and summary, 15-5401-08

Moccasin-flower, name for pink lady's slipper, 15-5606

Moccasins, Indian shoes, directions for making, 9-3251-52

Moccasins, snakes

varieties and description, 15-5416

Picture, 15-5413

Mocha, type of coffee, 6-2177

Mocking birds, 9-3139; 14-5025

Pictures, 9-3135; (in color), 10-3622

Modena. Ancient city of northern Italy, with a university and a splendid Romanesque cathedral. The Este Palace contains a fine library and art collection.

Modern painters, by Ruskin, note on, 9-3316

Modern wizard, * 17-6133-36

Moffat, Gertrude Macgregor, Canadian poet, 14-5110

Moffat, Robert, missionary to Africa, 2-467-68

Picture, portrait, 2-465

Mohair. A fine fabric made from the hair of the Angora goat. It is light, smooth, dust-shedding and lustrous. Mohair is used in the manufacture of many fabrics, such as plushes, astrakhans and camel's hair.

Mohammed, Arab leader, 7-2583

* life and teachings, 9-3097-98

decree as to date palm, 5-1626

founded religion, 13-4797

writing of the Koran, 15-5464

Pictures

portrait, 9-3085

dictating the Koran, 9-3091

Mohammed II, Turkish emperor, 13-4798, 4800

Mohammedanism

architecture, *see* Architecture, Saracenic;

Mosques

in central Asia, 18-6588

influenced Arabs to conquests, 9-3097-98

Islam, doctrine of Mohammed, 7-2583

warlike spirit, 13-4797

Mohammedans

and the Crusades, 7-2583-89

in India, 8-2700, 2702

invasion of India, 8-2822

method of reckoning time, 11-4131

Mohawk Indians

and Five Nations, 1-165

Molra, Gerald, British artist, 8-2860

GENERAL INDEX

Moiræ, or Fates, in Greek mythology, 9-3228

Picture (gravure), 9-3229

Moissan, Henri, made artificial diamonds, 16-5946

Mokha, or Mocha. Decayed Arabian coffee port on the Red Sea.

Mola, name for deep-sea sunfish, 16-5900

Molasses, by-product of sugar, 10-3418

Molasses candy, recipe for, 2-752

Mold for casting dishes, how to make, 7-2511-12

Mold, fungus, action and uses, 5-1628

Moldavia, part of Rumania, 14-4919, 4922

Molecules, 12-4158-59

combinations of atoms, 12-4404

varying number of atoms, 12-4101

See also Atoms

Moles, animal, 1-319-20

of Australia, 7-2509

Picture, 1-317

Molière (Jean Baptiste Poquelin), 18-6711-12

Picture, portrait, 18-6559

Molinia grass, note and picture, 10-3658

Molluscs

* account of, 19-6883-92

prehistoric, size of, 19-6884

shells of, 12-4278; 19-6883-85

See also Mussels

Pictures, 19-6882

shells of 200 varieties, 19-6886-87

shells (in color), 19-6882-96

Moloch, or spiny lizard, 14-5230

Molokai, one of Hawaiian Islands, 15-5448

leper colony, description of, 10-5586

Father Damien in, 7-2321

Moltke, Count Hellmuth Karl Bernhard von. Prussian general; born, Parchim, Mecklenburg-Schwerin, 1800; died, Berlin, 1891; strategist of the wars of 1861, 1866 and 1870.

Moltke, Helmuth von (1848-1916). Chief of the German general military staff at the beginning of the World War, and responsible for the general conduct of German operations in the invasion of Belgium and the advance upon Paris. In October, 1914, he became ill and was superseded at the front by General von Falkenhayn. In Berlin he organized the reserves, but died suddenly in 1916.

Moluccas. Dutch East Indian archipelago, including Amboyna and Ternate islands. Occupied by the Dutch in 1613, they have ever since been a great centre of the clove and nutmeg trade. Area, 30,000 square miles.

Mombasa, Kenya Colony, 9-3054

Picture, 9-3058

Momentum. The force of motion acquired by a moving body as a result of the continuance of its motion.

Mompesson, Catherine, heroism of, 9-3063

Mompesson, William, heroism of, 9-3063

Mona Lisa (La Gioconda), painting by Leonardo da Vinci, 3-828

Picture, 3-829

Monaco. Riviera principality under French protection. Area, 8 square miles. It consists of the towns of Monaco, Monte Carlo and La Condamine.

Monal, pheasant, description, 12-4365

Picture, 12-4362

Monarchy, form of government, 5-1788

Monasteries

architecture of, 16-5720

comment on, 13-4859

English, closed by Henry VIII, 5-1816

Making of illuminated manuscripts, 2-582

See also Monks

Monastery, moved by Scott, note on, 11-4970

Monastir, or Bitolia. Picturesque Jugoslav city in Macedonia, manufacturing carpets.

Monck, Charles Stanley, 4th viscount, governor-general of Canada, 4-1488

Monday, day of week

consecrated to Luna, the Moon, 9-3222

how named, 12-4299

Monet, Claude, French painter and impressionist, 7-2481-82

influence, 8-2709

Pictures

River in Sweden, 7-1477

Seine at Argenteuil, 7-2477

Money

* Money and why we use it, 16-5679-82

cacao seeds used as, 7-2536

economic function, 15-5360

Money (continued)

paper money, 16-5681-82

Question about. When will money have doubled itself at compound interest? 18-6550, 6552

Picture, early coins, 16-5680

Moneywort, plant. *Picture (in color), 16-5884*

Mongolia

became province of China, 15th century, 2-432

description, 18-6586

location, 18-6584

Mongolian races. One of the main divisions of mankind. They are mostly found in Asia, and the Manchus are a typical race. The Mongolic type is characterized by a yellowish skin, broad, flat features with prominent cheek-bones, broad skulls, almond-shaped eyes, and black, lank and coarse hair. They are subdivided into Northern, Southern and Oceanic Mongols.

first dwellers in Mesopotamia, 2-650

in China, 2-429, 432

in Japan, 2-562

invasions from central Asia, 18-6586, 6588

See also Tartars

Mongooses, 2-502

Picture, 2-496

Monitor, ship, 7-2434

Picture, battle with Merrimac, with note.

7-2435

Monitorial system of teaching, 14-5254

Monitors, lizards, 14-5232

Picture, 14-5231

Monk (or Monck), George, 1st duke of Albemarle, proprietor in Carolina, 2-553

under Commonwealth and Charles II, 6-1979

Picture, portrait, 2-549

Monkey flowers, 18-6662, 6664

Picture (in color), 16-5884

Monkey-nuts, *see* Peanuts

Monkeys, account of, 1-207-08, 213

drawing of, how to make, 6-2165

fable about, by Æsop

The monkey and the dolphin, 4-1342

See also Apes

Pictures (gravure), 1-209-12

Monkfish, or angel-fish, 16-5774

Pictures, 16-5777

ringed angel-fish (in color), 16-5785

Monks

* Early leaders of the church, 8-2843-50

* Some famous monks, 13-4859

developed handwriting, 10-3548

See also Monasteries

Monkshood, plant, description, 18-6662

Monochord, musical instrument

explanation of, 13-4594

in medieval times, 5-1796

used by Greeks, 5-1795

Monocotyledons, group of plants, 3-885

Monongahela River. American river, formed by West Fork and Tygart's Valley rivers, West Virginia. Joins the Allegheny River at Pittsburgh to form Ohio River. 300 miles.

Monoplanes, *see* Airplanes

Monopoly. The exclusive control of the supply of any commodity in a market. Monopolies are illegal to-day, though formerly the state used to grant these exclusive privileges of trade in certain articles.

Monotremata, egg-laying mammals, 7-2591

Monotype machine, description, 3-1064

Pictures, 3-1061

Monroe, James, president of U. S.

administration, 6-1912, 1914; 11-3938

life, outline of, 11-3951

Picture, portrait (gravure), 11-3947

Monroe doctrine, 11-3939

announcement of, 6-1911

formulated by John Quincy Adams, 10-3490

Monrovia. Liberian capital and port, exporting nuts and dyewoods.

Mons. Belgian manufacturing and coal-mining centre, famous for its lovely Gothic church of St. Waudru. A centre of fighting during the World War. On November 11, 1918, the Canadian troops entered the city of Mons in triumph.

Monsoon, a wind that blows constantly in the Indian Ocean and across Southern Asia, but that alternates its direction, in winter moving from the northeast, in summer from the southwest.

effect on rainfall, 8-2794

Mont Blanc. Highest mountain in Alps, on the border of Italy and France. Though the limit of

GENERAL INDEX

Mont Blanc (*continued*)

the snow line is 8,600 feet, ascents are now made practically every day during the summer, the first having been achieved in 1786. Beneath it is the Mer-de-Glace glacier. 15,780 feet.

Picture, 7-2317

Mont Cenis Pass. Highway between France and Italy over the Graian Alps. Beneath the Col de Fréjus a tunnel has been driven, carrying an electric railway between Modane and Bardonecchia. 6,900 feet.

Mont Royal, site of Montreal named by Cartier. 2-678

Mont Saint Michel, France. *Picture*, 11-3815

Montague House, beginning of British Museum, 12-4358

Montagues

Question about. Who were the Capulets and the Montagues? 16-5741

Montaigne, Michel de, French essayist, 18-6565 as essay writer, 8-2865

Picture, portrait, 18-6559

Montana. Large American Northwestern state; area, 146,997 square miles; capital, Helena; largest city, Butte. Containing much of the Rocky Mountain system and part of the Bad Lands, it used to be generally too dry for cultivation, but since irrigation has been carried out agriculture has become important, but stock-raising and mining are the leading industries. Copper, coal, silver and other minerals are abundant. Abbreviation, Mont. Nickname, "Stub-Toe State" or "Bonanza State." Flower, bitter root. Motto, "Oro y plata" (Gold and silver). The name comes from a Spanish word meaning "mountainous." First settlement thought to have been at Helena about 1861. described in Western States, 18-6425-36; 19-6841-50

Glacier National Park, 7-2281

made a state, 11-3944

mineral wealth, 9-3208, 3210

Pictures

cattle and sheep ranches, 18-6435

flag (in color), 19-7191

Grinnell Lake, Glacier Park, 7-2283

Indians in, 19-7237, 7238

Savenac nursery, Lolo national forest, 8-2810

smelting works, Anaconda, 9-3215

Montauban. French cathedral city on the Tarn, famous as a Huguenot stronghold in the 16th and 17th centuries.

Montcalm, Louis Joseph, Marquis de death of, 3-784

in Canada, in war against English, 2-683

Monte Rosa. After Mont Blanc the highest mountain in the Pennine Alps. 15,217 feet.

Montefiore, Sir Moses, philanthropist, note and picture, 19-7161

Montemayor, Jorge de, Spanish author, 19-7130

Montenard, Frédéric, French painter, 8-2856

Picture, Pastoral Scene, 8-2857

Montenegro. Formerly a tiny independent kingdom, but since 1918 part of Jugo-Slavia. Its name means "Black Mountain," and it consists of a wild mountain region, peopled by a brave and hardy Serbian race. After the defeat of the Serbians by the Turks at Kossovo in 1389, the Montenegrins retired to their mountains and carried on the war against the Turks almost incessantly up to 1912, being the only Balkan people who preserved their independence.

after the World War, 17-6346

Montereian Hills, Quebec, 1-108

Monterey. Cathedral city of northeast Mexico, in an agricultural and mining region.

Monterey, Battle of. An engagement between the United States forces under General Taylor and the Mexicans under General Ampudia in 1846. After suffering three days' attack upon their city, the Mexicans sued for peace and were allowed to evacuate, and an eight weeks' armistice followed, 6-1920

Montesquien, Baron Charles de. French critical writer; born near Bordeaux, 1689; died, Paris, 1755. *Picture*, portrait, 18-6713

Monteverde, Italian musical composer, 19-6903

Montevideo, Uruguay. *Pictures*, 19-6981

Montezuma II. Aztec ruler. 1-244; 19-7132

Montfort, Simon de. English statesman, patriot and general; born about 1208; killed at the battle of Evesham, 1265; called first model parliament in England.

Montfort, Simon de (*continued*)

struggle with Henry III. 5-1572

Picture, Riding into Rochester cathedral, 5-1573

Montgolfier, Jacques Etienne. French inventor; born near Lyons, 1745; died, Servières, 1799; inventor with his brother Joseph Montgolfier of first balloon.

experiments of, 1-167

Montgomery, James, hymn-writer

sent to prison, 7-2298

See also Poetry Index for poem and note

Montgomery, Lucy Maud, Canadian author, 15-5370-71

Montgomery, Richard

invasion of Canada, 1775-76, 3-942

attacks on Montreal and Quebec, 4-1164

Montgomery. Capital of the State of Alabama, 180 miles northeast of Mobile, is a large inland cotton market and is the distributing point for manufactured products. It was the temporary capital of the Confederacy.

Month, definition of, 11-4132

Monticello, home of Thomas Jefferson

Picture, with note, 12-5829

Montmorency Falls. Waterfalls in the province of Quebec, Canada; 265 feet high.

Picture, 3-775

Montpelier. Capital of the State of Vermont, on the Winooski River. The principal industries are granite working and the manufacture of saddlery, hardware, clothespins, crackers, patent medicines and machinery. The surrounding region is largely agricultural.

Montreal

description, seen from river, 6-1962

founding of, 4-1482

Indian village on its site visited by Cartier, 2-678

Pictures, two views, 4-1487

Monts, Pierre du Guast, Sieur de, settlement in Acadia, 2-679-80

Montserrat. British West Indian island in the Leeward group; area, 32 square miles; capital, Plymouth. Fertile and beautiful, it exports cotton and limes.

products, 9-3191

Moodie, Mrs. Susanna, Canadian author,

14-5105-06

* Roughing it in the Bush, summary and quotations, 16-5901-05

Moody, Dwight Lyman, evangelist, 12-4438

Picture, portrait, 12-4439

Moon

* Earth and the moon, 10-3535-44

attraction for the earth, 10-3536

description, 4-1449-50

diagram showing position of earth and sun, 10-3535

distance from earth, 4-1353

eclipses the sun, 9-3170, 3176

how formed, 1-22, 24, 114

tides caused by, 2-583-84

Poems about

Oh, Look at the Moon! by E. L. Follen, 7-2364

To the Moon, by P. B. Shelley, 2-489

The Wind and the Moon, by George MacDonald, 16-5711

Questions about

Are there people on the moon? 16-5846

Does the moon pull the sea? 2-583-84

Is there a man in the moon? 4-1449

Why does the moon grow brighter as the sun sets? 18-6554

Will the world become like the moon? 1-313

Would the earth seem to be up in the sky if we were on the moon? 4-1452

Pictures

as seen through telescope, 1-24; 10-3538-39, 3543

craters, 4-1449

eclipses the sun, 9-3170, 3172, 3173

four phases, 10-3540

mountain peaks, 10-3537

new moon, 10-3543

Moons of planets

of Jupiter, 10-3409-10

of Mars, 9-3293

of Neptune, 10-3412

of Saturn, 10-3410-12

Moonstone, account of, 19-7229

Picture (in color), facing 19-7225

Moonwort, fern

Picture (in color), 10-3727

GENERAL INDEX

- Moore, Albert**, British painter, 6-2236
Picture, Quartette (gravure), 6-2240
- Moore, Anne Carroll**, and juvenile libraries, 15-5624, 5628
- Moore, Benjamin**, discovered nitrogen peroxid in air at seaside, 6-2252
- Moore, Clement C.**, *see* Poetry Index for poem and note
- Moore, Sir John**, British general in war in Spain, 6-2206
Poem about, Burial of Sir John Moore, by Charles Wolfe, 2-607
- Moore, Thomas**, Irish poet, 12-4228
 as a song-writer, 10-3610
See also Poetry Index for poems and notes
Poem about, To Thomas Moore, by Lord Byron, 19-6989
- Pictures*, portraits, 10-3605; 12-4227
- Moore's Creek, Battle of**, 1776, 4-1166
- Moorhens**, *see* Gallinules
- Moorhouse, Hopkins**, Canadian author, 15-5370
- Moorhouse's comet**, 10-3671
- Moorings of a ship**, 14-5003
- Moorish idol**, fish
Picture (in color) 16-5787
- Moorland**, vegetation of, 4-1280
- Moors**, architecture, *see* Architecture, Saracenic
- Moors in Portugal**, 14-5183
- Moors in Spain**, 14-5042-44
 influence on European culture, 3-823
 influence on pottery-making, 5-1664
See also Architecture, Spanish
- Picture*, last king surrendering keys of Granada, 14-5043
- Moose**, animal, 4-1448
Pictures, 4-1441; 17-6173
- Moose-bird**, name for Canada and Oregon jay, 13-4830; 14-5136
- Moose Jaw**, Agricultural and railway centre, Saskatchewan, Canada.
- Moose tick**, 16-6020
- Moosewood**, tree, 13-4777-78
 variety of maple, 12-4507
Picture, 13-4777
- Moqui Indians**, 1-161
- Moraines**, glacial, explanation, 1-158
- Morales, Luis de**, Spanish religious painter surnamed El Divino (The Divine); born, Badajoz, about 1509; died there, 1586. He was probably self-taught.
 paintings of, 4-1495
- Moralities**, early form of plays, 2-721
- Moran, Thomas**, American painter, 9-3332
Picture, Bringing Home the Cattle (gravure), 10-3458
- Moray**, fish
Picture (in color), 16-5786
- More, Sir Thomas**
 life and writings, 1-306
 and Henry VIII, 5-1816
 death of, 14-5124-25
- Moreau, Gustave**, French artist, 7-2482
Picture, St. Cecilia, 7-2478
- Morelos y Pavori, José**, Mexican leader, 19-7136
- Moretto da Brescia**, Italian painter, 3-1107
Picture, A Nobleman (gravure), 3-1112
- Morgan, Daniel** (1736-1802). American Revolutionary general, born in New Jersey but a resident of Virginia. He served at Quebec and Saratoga and in the South.
 escapes from Lord Cornwallis, 4-1172
Picture, portrait, 4-1165
- Morgan, Henry**, destroyed Panama City, 1-370
- Morgan, John Pierpont** (1837-1913). American financier, international banker, art-collector and philanthropist.
- Morgan, Sarah**, mother of Daniel Boone, 6-2190
- Morganite**, account of, 19-7228
Picture (in color), facing 19-7225
- Morgarten, Battle of**, 16-6004
- Morin, Paul**, French Canadian poet, 14-5110
- Morland, George**, English artist, 6-2230
 * life and work, 7-2334
Picture, portrait, 7-2329
- Morley, Christopher**, author, 14-5012
- Morley, John**, author, 11-3999, 4003
Picture, portrait, 11-3999
- Mormons**
 church buildings, Salt Lake City, note and picture, 19-6844
 history, 6-1920, 19-222
 settlement in Utah, 18-6430
 irrigated Salt Lake Valley, 7-2544
- Morning-glory**, flower
 bush morning-glory, 18-6656
- Morocco**. North African sultanate; area about 231,000 square miles; capitals, Morocco, or Marrakesh, Fez, Meknes and Rabat. Rapidly growing in prosperity, the French protectorate produces barley, oranges, figs, lemons, dates and almonds; and lead, silver, gold and antimony are mined. Casablanca, Rabat and Mogador are the chief ports. Spanish Morocco is a zone of about 11,000 square miles, containing Tetuan, the capital, Melilla, and the wild Rif country; Tangier is an international port. Morocco was independent up to 1912, when it became a French protectorate.
 as a Spanish possession, 14-5046
 history, 18-6808
- Moroni, Giambattista**, Italian painter, 3-1107
- Moros**, tribe in Philippines, 10-3588
- Morpheus**, god of dreams, 9-3234-35
Picture (gravure), 9-3230
- Morphine** (C₁₇H₁₉O₃N). The principal alkaloid of opium and a bitter, white, crystalline base. Found sometimes in other plants besides the opium poppy, the wild hops. Used as an anodyne and to induce sleep.
- Morris, Lewis**, English poet, 12-4232
- Morris, William**, poetry of, 12-4230
See also Poetry Index for poems and notes
- Morris dances**, directions for, 10-3501; 18-6785-86
- Morrison, Charles**, and electric signals, 17-6236
- Morse, Samuel F. B.**, inventor and artist
 * life and work, 17-6238
 and founding of National Academy of Design, 9-3330
 submarine cable in N. Y. harbor, 12-4293
Pictures, portrait, 17-6235
 making experiments, 17-6239
- Morse alphabet**, for telegraph, 17-6050, 6052
- Mortar**, how made, 7-2305
- Morte d' Arthur**, by Malory, its value, 1-305
- Mortgage**. A conveyance of property, upon condition, as security for the payment of a debt. It is extinguished by payment of the indebtedness on the day when due.
- Morton, Levi P.**, vice-president of U. S.
Picture, portrait (gravure), 11-3948
- Morton, William Thomas Greene**
 and discovery of anæsthetics, 8-2729
- Mosaics**
 * in early Christian art, 2-578-81
 how made, 13-4564
 use in early Christian churches, 16-5716
Pictures, 2-575, 577, 579, 581
 modern Italian workshop, 13-4571
 Pompeian, Defeat of Darius, 2-709
 St. Mark, 13-4564
- Mosasauros**, prehistoric lizard, 5-1660
- Moscow**, Russia, description, 16-5856-58
 Napoleon's army at, 6-2207; 7-2599; 10-3571-72
Pictures, 16-5857
 church of St. Basil (gravure), 16-5722
 Kremlin, 16-5847
- Moselle**. River of France and Germany, rising in the Vosges and joining the Rhine at Coblenz. It passes Nancy, Metz and Treves. In its lower valley it runs past vine-clad hills which produce the celebrated Moselle wines. 320 miles.
- Moses**, Hebrew leader, 19-7156
 rules of health and sanitation, 8-2722
Poem about, Burial of Moses, by C. F. Alexander, 14-5237
Pictures
 statue by Michelangelo (gravure), 13-4613
 with tables of stone, 13-4811
- Mosques**
 architectural features, 15-5465-66
 description, 13-4807
 famous ones, 15-5468
 in India, 15-5471-72
 Moti Musjid, 8-2700
Pictures, 13-4805, 4807, 4809; (gravure), 15-5474, 5476, 5478
 at Assiout, Egypt, 18-6738
 Constantinople, mosque of Shah Zade (gravure), 9-3095
 Persian, 3-919, 921
 Singapore, 9-3183
- Mosquito-hawk**, name for nighthawk, 9-3372
- Mosquitoes**
 * account of, 17-6417-18
 * diseases carried by, 15-5488, 5490-91
 malaria, 17-6417-18

GENERAL INDEX

Mosquitoes (*continued*)
influence on history, through transmitting disease, 18-6731-32

Pictures

eggs and chrysalis, 17-6416
emerging from pupal skin, 17-6417

Moss-campion, plant, description, 15-5602-03
of Rocky Mts., 18-6667

Picture

Moss pinks, see Moss-campion

Mosses, plants

account of, 10-3724

description and method of reproduction, 3-884
hair-cap moss, life-story, with pictures, 4-1279
Poem about. Fern and the Moss, by Eliza Cook, 12-4273

Pictures

Mosul, district on the Tigris, 18-6669-70

dispute as to government, 13-4806

Mother Carey's chicken, name for stormy petrel, 14-5130

Mother Hubbard's Tale, poem by Spenser, 3-1120

Mother-of-pearl, layer of shell, 12-4278

Motherhood

importance increases in higher forms of life, 7-2325-26

Poems about

Bravest Battle That Ever Was Fought, by Joaquin Miller, 12-4474

Gray Swan, by Alice Cary, 6-2149

Mother, by Lord Tennyson, 4-1380

Mother's World, by M. H. Alden, 5-1645

My Mother, by Jane Taylor, 2-736

My Mother's Hands, by E. M. H. Gates, 5-1646

Old Arm-Chair, by Eliza Cook, 4-1516

Somebody's Mother, 18-6649

Mother's Day, observance of, 6-2094

Motherwort, flower. *Picture* (in color), 13-4879

Moths

* Butterflies and moths, 18-6525-32

clothes-moth, 18-6532

life-history of clothes-moth, with pictures, 16-5745

codling moth, 17-6069

damage done by, 18-6532

eggs, 18-6526-27

gipsy moth, 17-6069

how differ from butterflies, 18-6525-26

life-history of, 18-6527-30

means of communication, 18-6530-31

pronuba moth, fertilization of yucca flowers, 18-6661

silkworm moth, 15-5308-09

Questions about

Does camphor keep moths away? 16-5958

Why does a moth fly round a candle? 2-585

Why is the tongue of a moth so long? 5-1609

Pictures

(in color)

American moths, 18-6533-34

European moths, 18-6547

Moti Masjid, mosque at Agra, 8-2700

Motion

gives rigidity and hardness, 13-4667

* laws of, in physics, 13-4665-68

falling body, law of, 14-4903, 5036

inertia, law of, 13-4667-68

measurement of, 14-4901

molar motion, of a mass, 15-5569

molecular motion, or heat, 15-5569, 5423

of earth, see Earth—motion

Questions about

Do all things move in space? 15-5517

If we swing a rope why does it go on swinging? 10-3734

When I walk in a moving train do I move faster than the train? 5-1811

Why are we thrown forward when the train stops suddenly? 12-4505

Why does a falling object turn round? 13-4827

Motion pictures, see Moving pictures

Motley, John Lothrop, historian and diplomat, 13-4821

Picture, portrait, 13-4814

Motmots, birds, account of, 9-3372-73

Pictures, 9-3366: (in color), 12-4369

Motor cars, see Automobiles

Motor centre, in brain, 8-2947

Motorcycles, first invention, 19-7015

Mott, Mrs. Lucretia, American reformer, 14-5268-

69

Mouflon, wild sheep, 4-1375

Picture

Mound-builders. Primitive peoples who have erected mounds at some stage of their development. In North America mounds have been found in the Ohio and Mississippi valleys. They are generally of earth and filled with skeletons and ceremonial objects buried with the dead.

Mount. For mountains, see word following

Mount; as Pelvaux, Mount

Mount Desert Island, Maine

Lafayette National Park, 7-2291

Picture

Mount Holyoke College

founded by Mary Lyon, 14-5270

Picture, Mary Lyon Hall, 14-5266

Mount McKinley National Park, Alaska, 7-2285, 2288

Mount Rainier National Park, 7-2288

Picture and note, 7-2283

Mount-Stephen, George Stephen, 1st Baron (1829-1921). Born in Scotland; noted Canadian financier and railway man; first president of the Canadian Pacific Railway.

Mount Vernon, home of Washington, on the south shore of the Potomac.

description, 5-1542

Martha Washington at, 2-392

Picture, tomb of Washington, 3-1041

Picture, with note, 18-6839

Picture (grave), 11-3947

Mount Wilson Observatory, California

Picture, 18-6436

Mountain ash, tree, 12-4382, 4396

Pictures

tree, flower and leaf, 12-4396

fruit (in color), 11-4027

Mountain asters, see Asters, Mountain

Mountain laurel, 13-4774, 4776

Picture, 13-4774

Mountain-lion, see Puma

Mountains, nineteen highest:

	<i>Feet</i>
Everest, Himalayas.....	29,002
Godwin-Austen	
(K2 or Dapsang), Karakoram.....	28,250
Kinchinunga I, Himalayas.....	28,146
Makalu, Himalayas.....	27,790
Dhaulagiri, Himalayas.....	26,795
Nanga-Parbat, Himalayas.....	26,620
Nanda Devi, Himalayas.....	25,645
Tirach Mir, Afghanistan.....	25,400
Ulug Mustagh, Tibet.....	25,300
Aling-Gungri, Tibet.....	24,000
Tengri Khan, Thian Shan.....	24,132
Chumulari, Himalayas.....	23,930
Trisul, Himalayas.....	23,600
Dunagiri, Himalayas.....	23,184
Aconcagua, Andes.....	22,080
Tupuncato, Andes.....	22,000
Kedarnath, Himalayas.....	22,770
Panch Chuli, Himalayas.....	22,650
Api, Himalayas.....	23,399

* Face of the earth, 6-2169-76

* How sun and wind made the hills, 2-629-34

* Mountains and glaciers, 7-2313-16

effect on rainfall, 8-2667, 2923

* flowers of, with pictures, 15-5601-08

formation of, 2-526, 527

high mountains compared, 8-2695

highest in North America, 10-3584

measuring height of, 15-5286-87

variations of temperature on, 8-2668

Questions about

How do we know the height of a mountain?

11-3840

Is a mountain higher in hot weather?

15-5365-66

What are the highest mountains? 18-6553

What is the wind like on a mountain-top?

16-5746

Why do mountains get no higher though snow falls on them? 6-2250

See also names of mountains

* *Pictures*, 7-2313-18

diagram showing formation and strata,

2-631

formation, 2-527

Mourning-doves, see Turtledoves

Mouse, see Mice

Mouse-dog, animal, 3-873

Mouse-ear hawkweed, see Hawkweed—mouse-ear

GENERAL INDEX

- Mouse tail, flower**
Picture (in color), 15-5400
- Mouth**, account of, 6-1929-33
- Mouth and the teeth**, * 6-1929-33
- Mouth-organ**, how to play, 19-6962-63
- Movement**, *see* Motion
- Movement of things**, * 13-4665-68
- Movements of plants**, 2-743-46; 1-118
- Moving pictures**
 * Making moving pictures, 18-6593-6606
 camera, description of, 18-6597
 explanation of, 18-6596-97
 invention, 18-6594, 6596
 plays, how made, 18-6597-98, 6602
 popularity, 18-6600, 6602
 stage-settings, with pictures, 18-6601
 statistics of, 18-6600
 trick pictures, 18-6602
 Question about. How are the cartoons made for the films? 2-456
Pictures
 preparing films, 18-6595
 various settings of, 18-6601, 6603-06
- Mozambique**, formerly Portuguese East Africa, 18-6814
- Mozart, Wolfgang Amadeus**, German musical composer
- * **Life and work**, 19-6917-18
- Music**, character of, 19-7073
- Pictures*
 portrait, 19-6912
 scenes from his life, 19-6919, 7074
- Much Ado about Nothing**, by Shakespeare
 story of, 16-5757-58
- Mucilage**. A name applied to jelly-like preparations or watery solutions of vegetable gums. There is mucilage exuding in solid form from plants such as gum arabic, and a solution made by extracting plants such as marshmallow.
- Mucous membrane**, description, 6-1931
- Mud eel**, amphibian. *Picture*, 15-5457
- Mud-hen**, name for marsh-hen, 14-5020
- Mud-volcanoes**, New Zealand, 7-2579
- Mudfish**, note on, 15-5631
 lives out of water, 15-5541
Pictures, 15-5631
 African mudfish, 15-5457
- Muezzin**. In Mohammedan countries, the name of one who calls the faithful to prayer from the side of a mosque or its minaret. It is considered a meritorious office insuring admission into Paradise.
- Mugwump**. Name given originally in the United States to independent voters refusing to support the policy of either political party. The word is of Indian origin and means "great chief." It was formerly applied in a disparaging sense.
- Muir, Alexander**, *see* Poetry Index, for poem and note
- Muir, John**, naturalist
 * **Life of**, 19-7057
 adventure with dog, Stickeen, 12-4195-97
 Picture, portrait, 19-7057
- Muirhead, David**, British painter, 8-2860
- Mukden**. Capital and trading centre of Manchuria.
- Mukden, Battle of**, Russo-Japanese War, 2-566
- Mulatto**. A person of mixed Caucasian and negro blood, or Indian and negro blood, usually of a brownish yellow complexion.
- Mulberry**. A tree of the Moraceae family thriving in temperate and warm climates. The common, or black, mulberry, a native of Asia and common in Europe, is seldom seen in North America except in the South and in California. The white mulberry is more common but less palatable. The red mulberry, a native of Eastern North America, is the largest, has deep red fruit and valuable wood.
 bark used by Chinese for paper, 3-1054
 description and pictures, 11-4097
 silkworm moth feeds on, 15-5308
- Mules**, account of, 6-2020
 eat less than a horse, 9-3208
- Mullein**, plant
 life in winter, 2-510
Picture of flower (in color), 13-4879
- Müller, Max**, estimate of words in English language, 16-5961
- Müller, Wilhelm**, *see* Poetry Index, for poem and note
- Mullets**, fishes, 16-5775
- Mullets** (*continued*)
Pictures, 16-5777
 gray mullet (in color), 16-5781
 red mullet (in color), 16-5781
- Mulock, Dinah Maria (Mrs. Craik)**, *see* Poetry Index for poem and note
- Multnomah Falls**. Waterfalls in Oregon, 850 feet high.
- Mumford (or Mulford)**, wife of John Eliot, 18-6635
- Mummies, Egyptian**, 3-812
Pictures
 mummy-cases, 2-452; (gravure), 1-66
- Mumps**. A popular name for an inflammation of the parotid, and sometimes of the other salivary glands. It is infectious and contagious, and attacks chiefly children. Stiffness about the jaws is followed by pains and swelling beneath the ear, generally first on one side and then on the other, lasting from eight to ten days. Treatment consists mainly in protecting the affected parts from cold.
- Muncacz, see Munkácsy**
- Munchausen, Baron**
 * **Adventures of Baron Munchausen**, book, extracts and note, 4-1421-27
- Munich**. Capital of Bavaria, and fifth largest German city. A very handsome place, it is noted for its university, its splendid art collections and its huge 15th-century cathedral. There are large brewing, foundry, stained-glass and optical-instrument industries.
Picture (gravure), 12-4175
- Municipal Government**. The self-government of a town, city or village. It includes all the activities of the municipality: the public utilities, including ways of transportation and communication, supplying of light and water; disposal of waste matter; protection of property, health, life; education; recreation; charities and correction; and municipal housing. There are in America four varieties of municipal executives; in some cities the mayor is given complete charge of all administrative work, the council being ousted from any share in it, as in Boston and New York. In other cities the mayor is given a limited range of power, the council retaining a hold upon him, as in Chicago, Philadelphia and Los Angeles. Third, there is the Commission plan of government wherein the administrative functions are divided among five commissioners, as in Buffalo and St. Paul. Lastly, there is the arrangement by which the supervision of the city's administrative work is given to a manager whom the council appoints and to whom he is responsible. This is called the city-manager plan.
- Munkácsy (Michael Lieb)**, Hungarian painter
Picture. Milton and his Daughters, 4-1237
- Munnings, A. J.**, British painter, 8-2860
Picture, Mares and their Foals (gravure), 8-2863
- Munro, Neil**, author, 11-3898
- Münster**. Ancient and picturesque German cathedral city in Westphalia.
- Munster**. Southwestern Irish province, comprising Cork, Clare, Kerry, Waterford, Limerick and Tipperary; area, 9,320 square miles.
- Muntjac**, animal, 4-1447
- Muntz, Laura**, Canadian painter, 10-3704
Picture, Madonna with Angels (gravure), 10-3708
- Mural painting**, *see* Painting—mural
- Murcia**. Picturesque old Moorish city in south-east Spain, among orange groves and fruit gardens. It has a fine cathedral and some manufactures.
 situation of, 14-5050
- Murdock, William**
 invention of gas-light, 3-990, 992
 made model of steam-engine, 5-1612
Picture, toy model, 5-1615
- Murfree, Mary Noailles**, *see* Craddock, Charles Egbert
- Muriatic acid, or hydrochloric acid (HCl)**. A caustic compound of hydrogen and chlorine whose aqueous solution is used extensively in dyeing, in making coal-tar colors, and in preparing the chlorid of different metals. Colorless in its pungent odor and taste, and soluble in water, it is the strongest acid known.
- Murillo, Bartolomé Estéban**, Spanish painter, 4-1500

GENERAL INDEX

Murillo, Bartolomé Estéban (continued)

Pictures

- A Spanish Flower-girl, 9-3070
- Infant Jesus and the Infant St. John, 4-1494
- Infant St. John, 4-1494
- Madonna and Angels, 4-1497
- Madonna and Child, 4-1497

Murimuth, Adam, chronicle of, 5-1682

Murphy, Emily (Janey Canuck), Canadian author, 15-5371

Murphy, Francis, American painter, 10-3456

Murray Bay, on St. Lawrence River, 6-1962

Murray River. Largest Australian river, draining 250,000 square miles. Rising in the Australian Alps, it flows into the Great Australian Bight, in South Australia, forming the boundary between New South Wales and Victoria for most of its course. With its Murrumbidgee, Lachlan and Darling tributaries it forms an immense river system, 1,120 miles.

Murre, bird. *Picture* (in color), 9-3132

Muscat. Port of Oman, Arabia, exporting dates, pearls and horses.

Muscle Shoals, Alabama, 13-4522; 14-4889

Picture, Wilson Dam, under construction, 7-2312

Muscles

* structure and use, 5-1803-05

control of joints, 5-1560

efficiency of, 15-5571

Pictures, 5-1803-05

Muses, nine sisters

list of, with description, 9-3228

mother was Mnemosyne, goddess of memory, 9-3234

Museum. An institution for the preservation, study and exhibition of objects of art and objects of natural scientific and literary interest. The term was originally applied to a temple sacred to the Muses. The modern meaning of museum seems to have come from offerings of sacred or historical interest preserved in shrines, churches and monasteries. Museums to-day include art museums, of which the best are the Uffizi and Pitti palaces in Italy, the Louvre in Paris, the British Museum in London, the Rijks-Museum in Holland, the Metropolitan Museum of Art in New York and the Museum of Fine Arts in Boston. Museums of natural history cover a wide field. Such are the British Museum in London and the Jardin des Plantes in Paris. There are, besides, historical, technological and commercial museums.

boy's home museum, 11-4018

See also American Museum of Natural History, N. Y.; Metropolitan Museum, N. Y.

Mushrooms

* account of, 11-3905-08

description of, for game, 16-5771

edible varieties, 10-3723; 11-3908

growth, 5-1628

poisonous, 11-3907

Pictures

edible and poisonous, American (in color)

facing 11-3904-05

growth of, 5-1627

Music

chords

Chopin's use of, 19-7150

dissonant chords in modern music, 19-7153

vibrations of notes in, 18-6696-97

counterpoint, 19-6902

discord, cause of, 19-6855

harmony

base in mathematical relations of vibrations, 18-6696-98

first use in part-singing, 19-6901

relation to counterpoint, 19-6902

hearing of

* Music and noise, 18-6437-39

brain centre for hearing, 9-3062

detected by one ear only, 9-3305

high notes heard best, 18-6438

history

* Beginnings and growth of music, 19-6897-6903

* Classic composers and their works, 19-7071-76

* Composers of great music, 19-6913-28

* Romantic composers and music of to-day, 19-7149-53

church influence on early development, 19-6900

Music—history (continued)

classical influence, 18th century, 19-7072

early history, 19-6913

Jewish musicians, 19-7162

impressionism, Debussy's influence, 19-7152

modes, authentic and plagal, 19-6900

programme music, Berlioz a pioneer in, 19-7150

ratios, or relations, between notes, 18-6695-98

romantic movement, beginning of, 19-7076

definition of, 19-7149

scales

* kinds, and relation of notes to each other, 18-6696-99

explanation of, 19-6898

chromatic scale, 18-6698

diatonic scale, 18-6698

pentatonic, or five-tone scale, 18-6698

tempered scale introduced by Bach, 19-7071-72

story about, Music of the willing heart, 5-1688

* theory of musical sounds, 18-6695-6700

See also Musical instruments; Overtones;

Piano; Sound; also names of musicians

Poems about

A Musical Instrument, by Mrs. E. B. Brown-ing, 5-1779

A Piper, by Seumas O'Sullivan, 9-3110

Orpheus and his Lute, by Shakespeare, 8-3004

Piper, Play, by John Davidson, 6-2242

Piping Down the Valleys Wild, by William Blake, 8-2764

Song for St. Cecilia's Day, by John Dryden, 4-1270

Questions about

When we sing a note to the piano, why does it answer? 5-1750

When were madrigals composed and sung? 16-5743-44

Music for songs, see Songs with music

Music scores, how to mend, 13-4737

Musical glasses, 15-5333

Musical instruments

Æolian harp, 8-2742, 2881

from bottles, how to make, 17-6387

history, before piano, 5-1795-96

early forms, 19-6898-99

sound-waves from, 5-1750

stringed

tone, how affected by changes in string, 18-6699

various kinds, 19-6899-6900

Wheatstone's invention of invisible playing, 17-6237

See also names of instruments; as Piano; Violin, etc.

Question about. What was the first stringed instrument? 13-4594

Pictures, 19-6899-6902

Musk-ox, animal, 4-1378

in Barren Lands, Canada, 7-2562

Picture, 4-1372

Musk plant, see Monkey flowers

Muskallunge, fish, 15-5635

Picture and note, 15-5631

Muskmelons, 6-2062

Picture, 6-2063

Muskrats, 3-1133-34

Picture, 3-1129

Musquash, see Muskrats

Musschenbroek, Pieter van, Dutch scientist, and Leyden jar, 4-1246

Mussels, description, 19-6884-85

and bitterlings, 15-5541

used in building a breakwater, 19-6885

Question about. How does a mussel build its shell? 12-4278

Pictures, 19-6882

mussel bed in Holland, 11-4063

shells, 19-6886; (in color) 19-6893

Mussolini, Benito, Italian leader, 13-4568

Mussulmans, see Mohammedans

Mustard

account of, 8-2996

directions for growing, 2-748

wild mustard or charlock, 15-5394; 8-2996

Question about. Why does mustard burn our tongue? 8-3013-14

Pictures, plant, 8-2990

hedge mustard (in color), 13-4879

wild mustard or charlock, 15-5393

GENERAL INDEX

Mustard Family of plants

weeds of, 15-5392, 5394

Mutiny of the Bounty, 1789. Mutiny of the crew of H.M.S. Bounty, who cast adrift their officers. The Pitcairn Islanders are descendants of the mutineers.

Mutsuhito, emperor of Japan

Picture, portrait, 2-561

Muybridge Eadweard, photographs of horse in motion, 18-6594

My Pretty Jane, song, origin of, 10-3609

Mycenæ, Greece

architecture, 14-5212

Schliemann's explorations in ruins, 2-447

wall-paintings, 2-448

Pictures

Gate of Lions, 11-3991

Tomb of Atreus (graveure), 14-5215

Myllæ, first sea-victory of Romans, 4-1194

Myllar, Andrew, early printer, 9-3386, 3388

Myloodon, prehistoric animal, 1-95-96

Mynas, birds, 8-2968

Picture, 8-2969

Myopia, or shortsightedness. The rays from distant objects are brought to a focus before they reach the retina of the eye and form an indistinct image, and the rays from very near objects converge so as to produce a distinct image. Corrected by the use of a concave lens.

Myosotis, flower. *Picture* (graveure), 19-7180

Myristica, plant, yields nutmeg and mace, 8-2994

Myron, Greek sculptor, 12-4220

Pictures

Marsyas, sometimes called Dancing Faun,

made after Myron (graveure), 12-4334

reconstruction of the Discobolus, 12-4219

Myrrh, account of, 8-2913

Myrtle or periwinkle

Pictures, flower (graveure), 19-7180; (in color), 14-4988

Myrtleberries, see Whortleberries

Mysore, rebellion against English, 8-2828

Mysore, Sultan of, see Tippoo Sahib

Mysteries, early form of plays, 2-721

Myths and legends

British

Dick Whittington and his cat, 2-758

Earl's daughter and beggarman, 14-5196

Gelert, the faithful dog, 5-1693

Gog and Magog, 14-5194

How Gotham got a bad name, 6-2108

How Lady Godiva helped her people, 17-6295

legends of places, 17-6324

Mona and the forsaken merman, 1-59

Robin Hood and his merry men, 2-397

St. George and the dragon, 1-54

See also Arthur, King

Poems about

Ginevra, by Rogers, 6-2032

King Bruce and the Spider, by Eliza Cook, 15-5521

Chinese, 5-1579-80

Story of the willow-pattern plate, 4-1532

French

Adventures of Reynard the Fox, 8-2965

Love laughs at locksmiths, 7-2352

German

Howleglass, the merry jester, 8-2962

* legends of the Rhine, 18-6503-07

Lohengrin, or the swan-knight, 8-2957-60

Undine, the story of a water nymph, 11-4141

Poems about

Erl King, by J. W. von Goethe, 19-6988

Pied Piper of Hamelin, by R. Browning, 1-224

Greek and Roman, 3-1070

* accounts of main gods, 9-3225-38

Achilles and the queen of the Amazons, 1-53

Androcles and the lion, 11-3982

Cupid and Psyche, 19-7005

Dog that remembered Odysseus, 1-146

Geese who kept guard of Rome, 11-3982

Hercules, twelve labors of, 9-3083-84

How Alcestris gave her life, 8-2703-07

Icarus and his waxen wings, 12-4197

Pandora, 14-5259

Penelope's tapestry, 1-53

Perseus, story of, 15-5442-43

Quest of the golden fleece, 3-1100-01

Riddle of the Sphinx, 18-6610

Story of Midas, 18-6030

Why the elm tree grows so tall, 8-2820

Myths and legends—Greek and Roman (continued)

Pictures (graveure), 9-3229-32

Indian

about sun, moon, and stars, 6-1970

Bride of the forest, 17-6203

Happy land of rest, 17-6200-03

How the bear lost his tail, 17-6199

White lily, 17-6204

Why the chipmunk has black stripes, 17-6204

Japanese

Mysterious portrait, 9-3080

Jewish

Stories from the Talmud, 9-3082; 18-6480

Wandering Jew, 19-7224

Kafir, 5-1582-83

Norse

A Tale of Many Lands, 14-4942

Iduna and the golden apples, 15-5328

Roman, see Myths and legends—Greek and Roman

Saxon

Beowulf, 1-56

various subjects

about days of the week, 12-4199-4203

* about imaginary animals, 1-353-59

about places and things, 15-5537

Questions about

What is the legend about Queen Dido? 3-1114

Who was Pallas Athene and what was one of her hobbies? 3-1115

Myxedema, disease, cured by thyroid extract, 9-3227



Nablus. Ancient capital of Samaria, Palestine.

Nabonidus, king of Babylon, 2-660

Nabopolassar, king of Babylonia, 2-658-59;

3-912; 18-6672

Nadaud, Gustave, song-writer, 10-3612

Nævius, early Roman author, 18-5908

Nagana, disease of animals, 17-6422

Nagasaki. Port of Kiushiu, Japan, with large shipyards. It is an important coaling station. Up to 1859 it was the only Japanese port open to Europeans.

and Christianity, 2-564

historic importance, 2-570

Nagoya. Capital of Owari, Japan. It is noted for its pottery trade and manufacture of cotton and silk.

Nagpur. Capital of Central Provinces, India, trading in cotton; also noted for oranges.

Nagpur. Division of the Central Provinces, India.

Naiads in mythology, 9-3235-36

Naihe, public orator of Hawaii, 2-446

Nail-box, how to make, 17-6262-63

Nails

rust prevention, 11-4079-80

suggestions for hammering, 19-7079

suggestions for nailing boxes, 8-2741

Questions about

Why does a carpenter seldom use nails in

oak? 14-5084

Why has a French nail grooves at the top? 18-6558

Nails (in body)

loss of, 4-1420

structure of, 4-1420

Question about. For what purpose do human beings have finger nails? 14-5220

Pictures, diagrams, 4-1415

Nairne, Lady (Caroline Oliphant), song-writer, 10-3610

Picture, portrait, 10-3605

Nairobi, Kenya Colony, 9-3054

Nalbandian, see Poetry Index for poem and note

Name-pictures, how to make, 12-4502

Names, children's, in American colonies, 3-966

Namur. Historic Belgian cathedral city at the junction of the Sambre and Meuse. It is an important industrial centre, with iron and brass foundries, and the manufacture of cutlery. It was captured by the Germans in August, 1914.

Nanaimo. Port on Vancouver Island, Canada, with lumber and fish-curing industries; also a coal-mining centre.

GENERAL INDEX

Nancy. Beautiful French city on the Meurthe, with a famous embroidery industry. Its many fine buildings include a cathedral and the old ducal palace of Lorraine. Nancy has a university and a noted school of forestry. cotton and metal works, 11-3818

Nancy School of hypnotism, 12-4444

Nandid, fish

Picture (in color), 16-5786

Nanking. Ancient Chinese city on the Yang-tse-kiang, once famous as a literary and as a manufacturing centre.

important location, 2-434

Nanking, Treaty of, 1842, 2-432

Nansen, Fridtjof

as a writer, 19-7014

voyage in the Fram, 13-4715-18

Pictures

portrait, with parents, 15-5617

in arctic scenes, 13-4711

Nantes. One of the most important ports of France, on the Loire. A fine modern city, it has many ancient buildings, including the cathedral and old ducal castle of Brittany; in the cathedral is Colombe's splendid monument to the last duke and duchess. There is a large government steam-engine works.

Nantes, Edict of, allowed freedom of religion, 10-3436

Naphtha. One of the products obtained from petroleum, is a volatile, colorless liquid, holding a place between gasoline and benzine. It may also be obtained in the distillation of wood and coal-tar. Industrially naphtha is used in the manufacture of cleaning compounds, paints and varnishes, rubber goods, etc.

Napier, David, and early steamboat, 17-6402

Napier, John. Scottish mathematician, inventor of logarithms; born, Merchiston, Edinburgh, 1550; died there, 1617.

Naples. Largest city and seaport of Italy, and one of the most beautifully situated in Europe. Founded by the Greeks as Neapolis, Naples generally is crowded, dirty and picturesque, though of late years much has been done to modernize it. There is a busy export trade, while fishing and the manufacture of textiles, pottery, gloves, soap and perfumery are carried on. The cathedral of St. Januarius dates from the 13th century, and the National Museum is rich in archaeological treasures from Pompeii.

fine harbor, 13-4576

Picture, 12-4413

Napoleon I, emperor of the French

life

* Napoleon and his conquerors, 6-2199-2208

* life and wars, 10-3570-72

abdication after Waterloo, 6-2208

at St. Helena, description, for game, 8-3023

became emperor in 1804, 6-2203

crowned king of Italy, 10-3571

divorce, and marriage to Marie Louise, 6-2206

escape from Elba, 10-3572

marriage to Josephine, 6-2200

retreat from Moscow, 10-3571-72

and French Revolution, 6-2102

and Haiti, 13-4591

and Italian unity, 12-4410, 4412

and Louisiana Purchase, 5-1702

and Robert Fulton, 17-6401

and Switzerland, 16-6006

benefits to France from his rule, 6-2204

son called King of Rome, 10-3571

stopped importing of sugar by France, 7-2532

stories about

Bird that Napoleon set free, 14-5124

How the French reached Moscow, 7-2599

wars against Germany and Austria, 11-3966,

3968

Poems about

Death of Napoleon, by Isaac McLellan,

19-6868

Grandmother's Tale, by Pierre de Béranger,

16-5921

Pictures

portrait, 6-2199

portrait, as a boy, by Girodet, 6-2103

portrait, with parents, 15-5619

a captive on shipboard (gravure), 6-2212

as a boy at school (gravure), 6-2209

at battle of Friedland, 10-3569

at St. Helena, 6-2103

Napoleon I—Pictures (continued)

at the head of his troops, by Meissonier

(gravure), 6-2212

Evening of Waterloo (gravure), 6-2211

farewell to his generals, 10-3562

Napoleon monument, Ajaccio, 11-3815

Napoleon III, emperor of the French

and Italy, 12-4411-12

died in 1874, 10-3576

made Maximilian emperor of Mexico, 19-7138

reign of, 10-3573

war with Germany, 11-3972

Napoleonic Wars

relation to War of 1812, 5-1703-04

See also Napoleon I

Narbada. River of the Indian Deccan, rising in the Satpura Mountains and flowing into the Gulf of Cambay. It is one of the most sacred rivers of India. 800 miles.

See 8-2696

Narbonne. Earliest Roman colony beyond the Alps, having been founded as Narbo in 116 B.C. It stands on the Canal du Midi in Languedoc, France, and is famous for its honey, its uncompleted 13th-century cathedral, and other relics.

Narcissus, character in mythology, 9-3237

Narcissus, plant, 19-7172

Picture, flower (gravure), 19-7174

Narcotic. One of several drugs which benumb the senses, dulling their susceptibility, reducing pain and bringing on sleep. Too large a dose will produce stupor or convulsions. Opium and belladonna are familiar narcotics.

Nares, Sir George, arctic explorer, 13-4713-14

in the Challenger, 14-5090

Picture, portrait, 13-4707

Narkunda, ship. *Picture,* engine room, 12-4425

Narva, Battle of. Fought between Charles XII of Sweden, with about 8,000 men, and the Russians numbering about 40,000, who were besieging this Baltic port (1700). Charles won a big victory, Peter the Great fleeing to Novgorod.

Narvaez, Panfilo de (c. 1480-1528). A Spanish soldier who led the second Spanish attempt to colonize Florida in 1528. He perished that year with all but four of his followers.

Narwhal, sea-animal, 6-2218; 14-4960

Picture, 6-2219

Naseby, Battle of, 11-3846

Nash, Thomas, English dramatist, 2-721

Nashville. Capital of Tennessee. An important educational and commercial centre, it has four universities and several colleges. Its manufactures are important and its trade extensive.

Nashville, Battle of, 7-2440

Nasmyth, James, inventor, 19-7206

Picture, portrait, with father, 15-5615

Nassau. Capital of the British Bahama Islands

on New Providence Island.

health resort, 9-3191

Nast, Thomas, artist

Picture, Portrait of General Grant, 7-2441

Nasturtium. The name, coming from the Latin *nasus*, nose, and *tortus*, twisted, refers to the acrid odor and pungent taste. Botanically, a synonym for Rorippa, the Cress Family. Horticulturally it signifies a plant of the genus Tropæolum, familiar in gardens. The latter species bear conspicuous flowers of varying shades of yellow and red.

Natal. South African eastern province, including Zululand; area, 35,000 square miles; capital, Pietermaritzburg. The soil is very fertile sugar and other tropical produce being grown near the coast, and fruit and cereals on the uplands. Sheep and cattle are reared, and coal is mined. Durban is the largest port on the east coast of Africa.

founding of, 9-3048, 3050

joined Union of South Africa, 7-2300; 9-3050

named by Vasco da Gama, 1-89

Picture, Albert Falls, 6-2173

Natick, Mass.

Eliot's mission to Indians, 18-6635-36

National Academy of Design, founding, 9-3330

united with Society of American Artists,

9-3334

National Assembly, in France, 10-3564, 3576

National Association of Audubon Societies,

14-5018

National flowers, 17-6180-81

National Gallery, London, 12-4361

National Guard, in France, 10-3566

GENERAL INDEX

National Guard. In the U. S. a term used in most of the states and territories to denote the organized militia. The Dick Bill of 1903 brought these state forces under Federal supervision for the first time. By the National Defense Act of 1916 the National Guard was brought more nearly into conformity with the requirements and standards of the regular army. The period of enlistment covers six years—three in the active organization and three in the reserve.

National League, in baseball, 17-6141

National Parks of United States, 7-2281-91

National songs of various countries,
* 17-6249-56

National Woman's Suffrage Association,
formation, 14-5269

Nations

improvement of mankind the purpose of, 19-6878
structure compared to human body, 19-6876
Question about. Which is the biggest nation? 5-1605

Nations, Battle of the, at Leipzig, 10-3572

Natural Bridge, Utah, note and picture, 18-6425

Natural Bridge, Va., note and picture, 14-4900

Natural gas. The lightest part of crude oil, made up of carbon dioxide, carbon monoxide, marsh gas and other hydrocarbons. It is found in sedimentary rocks, mostly sandstones, sometimes accompanied by petroleum. When it escapes to the air it is colorless, odorless and burns with a luminous flame. In time all the gas in the natural-gas well escapes through the hole made for it, and the well becomes empty and useless. Natural gas is used mostly in oil districts.

Natural selection, explanation, 4-1288

Naturalism in French painting, 7-2475-80

Naturalists, famous ones, * 19-7051-58

Naturalization. "The act of investing an alien (one born in another country) with the rights and privileges of a native-born citizen or subject." Most countries now grant naturalization after a term of residence in the country. In the British Empire the general law demands residence under the British flag or service under the British Government for five years out of the eight preceding the application. The last year must be spent in the place where the application is made. Married women take the nationality of their husbands. In the United States the term is continuous residence for at least five years, and the last year must be spent where the application is made. A "declaration of intention" must be filed at least two years before citizenship is granted. A married woman does not take the nationality of her husband. Only white aliens or those of African descent may be naturalized.

Nature

in English poetry, 18th century, 6-2027-30

Wordsworth and his friends, 7-2353-58

in French painting, 7-2467-72

Poems about

For full list, see 20-7680

Questions about

Is everything a part of nature? 2-458

Why is so much of nature green? 2-460

Nature study

gases about, 10-3514-15

For list of main articles, see 20-7599-7607

Nature's wonderful family, * 1-91-97

Nauru, island

account of, 9-3188

Nautical Almanac

Question about. What is the book called the Nautical Almanac? 2-457

Nautilus, mollusc, 19-6892

Picture. See *Argonauts*

Pictures. Shells, 19-6886; (in color), 19-6896

Naval Academy, U. S., see Annapolis

Naval Reserve. An organization which can be called into active service in time of war to reinforce the regular navy. The Reserve includes volunteers organized and trained for service, some seamen of the merchant marine and some mercantile vessels.

Navarino, Battle of. A decisive sea fight in the Greek War of Liberation, which brought about Greek independence. A Turkish and Egyptian fleet of 89 men-of-war was attacked by a British, French and Russian fleet of 24 ships in 1827, and in two hours was completely overwhelmed.

Navarre, Queen of, Jeanne d'Albret, 13-4581

Navigation. The science or art of directing vessels as they proceed from one place to another. It involves a knowledge of methods of determining locations, of arranging courses, of measuring distances, etc.

Navy, British, see England—navy

Navy of U. S., see United States—navy

Nazareth. Ancient town in Galilee, Palestine, the home of Jesus. In ancient times it was insignificant, but under its modern name, En Nasira, it had over 7,000 population in 1922, more than half Christians.

Ne plus ultra. Latin for "nothing further."

Neagh, Lough. Largest lake in the British Isles, in Ulster, Ireland. 150 square miles.

Neagle, John, American painter, 9-3330

Neal, David, American painter

Picture. Oliver Cromwell visits John Milton, 4-1241

Neale, John Mason, hymn-writer, 12-4436-37

Nearsightedness, explanation of, 10-3686

Nebo, Mt. Mountain from which Moses viewed the Promised Land.

Nebraska. One of the North Central states; area, 77,520 square miles; capital, Lincoln. Omaha is the largest city. Agriculture, stock-raising, meat-packing are the chief industries. Abbreviation, Nebr. Nickname, "Tree-planter State." State flower, goldenrod. Motto, "Equality before the Law." Nebraska is an Indian word meaning "wide river." First settlement, near Omaha, 1847.

described in North Central States, 15-5273-84; 17-6037-48

in Louisiana Purchase, 5-1702-03

in the Corn Belt, 15-5280

Kansas-Nebraska Bill, 7-2429

made a state, 11-3942

Pictures

flag (in color), 19-7191

reaping wheat in Washington County, 15-5273

smelting plant in Omaha, 17-6039

Nebuchadnezzar II, king of Babylonia

* life, 2-659-60

and the Jews, 18-6672

built hanging gardens of Babylon, 2-659

conquered kingdom of Judah, 19-7157

madness of, 2-653

Picture. madness of, 2-653

Nebulæ

beginning of suns, 1-20

description, 1-141-44

gases in, 11-4038

kinds, and famous ones, 11-4038

planetary, possible origin, 11-4038, 4040

relation to gravitation, 1-142-43

spiral, 9-3040

explanation of, 9-3175

outnumber formless nebulae, 11-4038

theories about, 11-4040-42

Pictures. 11-4039-42

diagram of spiral nebulae showing formation of planets, 9-3175

nebula of Andromeda, 1-21

Necho II, king of Egypt

sent Phœnician mariners round Africa, 2-465

Neckar. German river, one of the chief tributaries of the Rhine, which passes Heidelberg and joins the Rhine at Mannheim. 247 miles.

Necker, Madame (Suzanne Curchod), 9-3202-03

Necklaces

bells, of beads, directions for making, 4-1398

See also Jewelry

Picture. ancient Egyptian, 3-817

Nectar. In mythology, the drink with which the Olympian gods were refreshed. It was carried and poured for them by Hebe and Ganymede, the cupbearers of Zeus, and was believed to give to those who drank of it divine vigor and beauty.

Nectar in flowers, means for fertilization, 5-1609

Nectary, gland in flowers for honey, 2-509

Née. French for "born." The expression "Mrs. Smith née Jones" indicates that Jones was Mrs. Smith's name before marriage.

Needle. how to float in water, 2-623

how to thread, 1-228

Question about. Why is a needle no heavier when magnetized? 11-3976

Needle-book, directions for making, 16-5982

Needle-whirl, flower

Picture (in color), 14-4984

GENERAL INDEX

- Needles, The.** Three isolated chalk cliffs forming the westernmost point of the Isle of Wight. On one of them stands a powerful lighthouse.
- Negligence.** In law, failure to take due care such as the law requires to protect the interests of others who may suffer injury through the lack of such care.
- Negotiable paper, or negotiable instruments.** Promissory notes, bills of exchange, checks payable to bearer or to order of the payee, or other transferable evidences of debt, on which the holder may sue in his own name as if it had been made out to him in the first place.
- Negritos.** The name applied to the dwarf Negroes of Africa, the Oceanic Negroes of Malaysia, and certain of the Philippine Islands. The Andaman Islanders, the Samangs, and the Aetas are characteristic races outside Africa, while the Batwa pigmies south of the Congo are typical members of the African group.
- tribe in Philippines, homes of, 5-1656
- Negroes**
history in Africa, 9-3047
in U. S.
percentage of population in Southern states, 13-4518
political power in Southern states, 7-2444; 8-2670
provisions about, in U. S. Constitution, 5-1793
schools for, in the South, 14-4890
poetry, see Negroes, Songs of
Question about. Why is the skin of the negro black? 7-2609
- Negroes, Songs of, 18-6510, 6515**
text, or words, of songs
Massa's in de Cold, Cold Ground, by S. C. Foster, 8-2764
My Old Kentucky Home, by S. C. Foster, 8-3002
O Mammy's Pickaninny, by L. T. Elder, 19-6873
Oh! Roys, Carry me 'Long, by S. C. Foster, 4-1516
Way down upon de Swanee Ribber, by S. C. Foster, 4-1380
- Mehemiah, Jewish leader**
left Persia to rebuild Jerusalem, 3-916
- Nelissen, Kay**
East of the sun and west of the moon (story), 5-1845-49
Giant who had no heart in his body (story), 4-1525-28
Husband who was to mind the house (story), 3-1099
- Neid, Arabia, 18-6676**
- Nekrasov, Nicholas, Russian poet, 19-6908**
Picture, portrait, 19-6905
- Neku, king of Egypt, see Necho**
- Nelligan, Emile, French Canadian poet, 14-5110**
- Nelson, Horatio, English admiral**
* in wars against Napoleon I, 6-2202-05
death of, 6-2204
Nelson Column, London, 12-4361
Pictures
portrait, 6-2199
portrait, with parents, 15-5617
Nelson's good-bye to his Grandmother, by G. W. Joy (graveure), 6-2209
on his flagship (graveure), 6-2210
- Nelson, Wolfred, leader in Canadian rebellion, 4-1483**
- Nelson Column, London, 12-4361**
- Nelson River.** Canadian river rising in Lake Winnipeg and emptying into Hudson Bay. 1,660 miles.
- Nemea, a wood, in mythology, 9-3237**
- Nemesia. Picture (graveure), 19-7176**
- Nemesis, in mythology, 9-3238**
- Nemophila**
Picture, flower (graveure), 19-7178
- Neosho River.** American river rising in Morris County, Kansas; flowing into the Arkansas River. 400 miles.
- Nepal.** Independent state in the Himalayan foothills: area, 54,000 square miles; capital, Khatmandu. The Gurkhas are the ruling race. rebellion against English, 8-2828
- Nepotism.** From the Latin *nepos*, a nephew, a grandson; favor or patronage bestowed upon members of one's family because of the relationship rather than because of merit
- Neptune, god of the sea, 9-323f**
- Neptune, planet**
* account of, 10-3412, 3414
discovery of, 10-3414
distance from earth, measured by speed of train, 9-3034
distance from sun and length of year, 9-3180
- Neptune's cup, variety of sponge, 19-7060**
- Nerbudda, river in India, 8-2696**
- Nerchinsk, Siberia, range of temperature, 8-2194**
- Nereids, in mythology, 9-3235**
- Nernst, Walter, invented electric lamp, 16-5935**
- Nero, Roman emperor, 5-1862**
Pictures, busts of, 5-1862
- Nerva, Marcus Cocceius, Roman emperor, 5-1863**
- Nerves**
and pain, 11-3840
blood supply, 5-1811
cells, account of, 3-2833
compared to ameba, 2-663
in brain, 8-2944-45
in heart, affected by heat, cold, etc., 4-1212
cold makes numb, 2-460
current, nervous, 8-2838
* fibres, account of, 8-2837-38
in brain, 8-2945-46
motor and sensory, 5-1805
from brain to heart, 4-1212-13
habit affects sensations, 8-2720
of balance, 10-3426
of senses, 13-4596
hearing, structure and use, 9-3310
smell, 11-3956
taste, 11-3957
relation to muscles, 5-1804-05
See also Nervous system
Question about. What happens when our foot goes to sleep? 17-6289
Pictures, 8-2839, 2841
cells, magnified, 8-2837
human brain, 8-2947
diagrams, 8-2839
- Nervous system**
* Forest of nerves within us, 8-2837-41
milk as food for, 7-2325
of worms, 4-187
See also Brain
Picture, diagram of, 8-2841
- Nesting-boxes, birds', how to make, 18-6637**
- Nestors, birds, 10-3614**
- Nests of birds, 8-2760**
edible, 9-3372
Pictures, nests of American birds, 13-4765
- Netherlands, see Belgium; Holland**
- Nets, use in fishing, 11-4050, 4052-53**
Picture, mending nets, 11-4061
- Netting for string bag, how made, 6-2163-64**
- Nettles, plants, 14-4980**
dead-nettles, 14-4980
in England, 4-1275-76
notes on, 14-4978
Question about. What is it that makes a nettle sting? 1-75
Pictures, 14-4978
Pictures (in color)
red dead-nettle, 13-4879
red hemp nettle, 15-5399
white dead-nettle, 13-4878
yellow dead-nettle, 14-4988
- Neuchâtel, Lake of.** Largest lake lying entirely within the borders of Switzerland, with an area of 92 square miles.
- Neurosis.** (1) A disease of the nerves that occurs without any noticeable break or change in the nerve structure; (2) some action of a nerve that gives rise to activity of the mind.
- Neutrality.** The state of being neutral, or not taking part on either side of a contest or disagreement.
- Neva.** Russian river which flows from Lake Ladoga and past Leningrad into the Gulf of Finland. 45 miles.
- Nevada.** Western state: area, 110,690 square miles; capital, Carson City. Largest city, Reno. It is mostly arid and barren, but has valuable silver, gold, copper, lead and other mines. Abbreviation, Nev. Nickname, "Sagebrush State." State flower, sagebrush. Motto, "All for our country." Nevada is a Spanish word meaning "snow-clad." First settlement, Genoa, 1850.
described in Western States, 18-6425-34
19-6841-50
made a state, 11-3942

GENERAL INDEX

Nevada (continued)

mineral wealth, 9-3208, 3210
population, 8-2676

Pictures

flag (in color), 19-7191
Reno, on Truckee River, 8-2675
street in Reno, 19-6847

"Never-Never Country," name for part of Australia, 7-2468

Nevers. Ancient French city on the Loire, with a beautiful 13th-century cathedral and manufactures of porcelain and iron.

New Amsterdam, see New York (colony)

"New art," characteristics, 8-2714
influence in Europe, 8-2853

New Bedford. Seaport and cotton-manufacturing city in Massachusetts. Formerly a great whaling port.

New Berne, founded, 2-553

New Britain, island, renamed, 9-3188

New Brunswick. Canadian eastern province; area, 28,000 square miles; capital, Fredericton. It has farming, fishing and lumber industries. St. John is a great port.

history, separated from Nova Scotia, 3-944

minerals, 1-108

physical geography, 1-106

Pictures

Grand Falls, 6-2173

Grand Falls Bridge, 1-40

New Caledonia. Chief French Pacific island; area, 7,650 square miles; capital, Noumea. Discovered by Captain Cook in 1774, it became French in 1853. Coffee, fruit, nickel, cobalt and guano are produced.

used as convict settlement, 9-3304

Pictures, native house, 9-3303

New Carthage, ancient city in Spain, 4-1364; 14-5042

New England

agriculture, land unsuited for, 10-3404, 3406
colonial period

colonial customs and child life, 3-965-75

colonial preachers, 12-4446-47

emigration from, 10-3404

foreign element in population, 12-4152

influence of, 10-3401

literature, 12-4445-57

name for grant to Plymouth Company, 2-682

named by John Smith, 2-546

opposed War of 1812, 5-1704, 1705-06

pleasure resorts, commercial value, 12-4148

Sabbath observance, colonial times, 3-974-75

singing in colonial days, 18-6509

threatened to leave Union in 1814, 5-1705-06

See also United States—description; United States—history; Northeastern States; also names of states

New England Confederation. A union of the colonies of Massachusetts Bay, Plymouth, Connecticut and New Haven effected in 1643 for the sake of defense against the Dutch and the Indians and lasting until 1684.

New England Council

successor to Plymouth Company, 2-548

New English Art Club, influence of, 8-2858

New Forest. Woodland district in Hampshire, England, between the Solent, Southampton Water and the Avon. Much of it was afforested by William the Conqueror to provide a new hunting ground, and two of his sons were killed within it, Richard by a stag, and William Rufus by an arrow. There are now few deer but a distinct breed of ponies.

made by William the Conqueror, 4-1439

New France. Name given to the French possession in North America, otherwise known as Canada and Acadia.

government, as French colony, 2-682

* history, to year 1763, 2-677-83

See also Canada

New Granada, part of Peru, 19-6864

united with Colombia, 19-6975

New Guinea, account of, 7-2578

New Hampshire. New England state; area, 9,341 square miles; capital, Concord; largest city, Manchester. Textile-manufacturing, boot- and shoe-making, wood-pulp and quarrying are the leading industries. Abbreviation, N. H. Nickname, "Granite State." State flower, purple lilac. New Hampshire was named after Hampshire, England. First settlement thought to have been made at Dover, about 1623.

New Hampshire (continued)

described in Northeastern States, 10-3401-48;
11-3773-82; 12-4145-54

early history, 2-555

granite in, 11-3773

manufactures cotton, 9-3214

ratified Constitution, 20-7559

signers of Constitution, 20-7574

signers of Declaration of Independence, 20-7556

Story of a Bad Boy, 13-4815

Pictures

Berlin and Mt. Westminister, 11-3781

birches near Bethlehem, 10-3407

farm in winter, 10-3403

flag (in color), 19-7190

Franconia Notch, 12-4151

in the White Mountains, 7-2422

Langdon House, Portsmouth, 12-4154

Peterborough, Colony Hall, 19-6926

New Haven. Largest city and port of Connecticut, with hardware and cutlery industries; site of Yale University.

among largest cities in U. S., 11-3782

founding of, 2-554-55

New Hebrides, 9-3304, 3186

Pictures, native house, 9-3303

New Holland, early name for Australia, 3-860

New Ireland, island, renamed, 9-3188

New Jersey. Eastern state; area, 8,225 square miles; capital, Trenton. Textiles, particularly silk, automobiles, machinery, phonographs, etc., are manufactured, the chief industrial centres being Jersey City and Newark; the latter is the largest city. Fruits and vegetables are extensively grown. Abbreviation, N. J. Nickname, "Jersey Blue." State flower, violet. Motto, "Liberty and prosperity." New Jersey was named after the island of Jersey. First settlement, Bergen, 1617.

described in Northeastern States, 10-3401-08;

11-3773-82; 12-4145-54

early history, 2-550, 552, 555

fighting in, during Revolution, 4-1168

manufactures

rank in, 11-3774

silk, 9-3216

talking machines, 1-264-65

New Jersey plan for Constitution, 20-7559

signers of Constitution, 20-7574

signers of Declaration of Independence, 20-7557

Pictures

Boardwalk, Atlantic City, 12-4149

Camden-Philadelphia bridge, 1-34

Edison in his workshop, 17-6132

flag (in color), 19-7190

Grover Cleveland's home, 19-7195

Princeton University, 12-4311; (gravure), 18-6687

taking oysters off the coast, 11-4062

Trenton, airview of, 11-3780

New Jersey tea, shrub

leaves used for beverage, 13-4783

New Learning, see Renaissance

New Mexico. Mountainous Southwestern state; area, 122,634 square miles; capital, Santa Fé. Largest city, Albuquerque. Mining and stock-raising are carried on. Dry-farming is important. Abbreviation, N. Mex. Nickname, "Sunshine State" or "Spanish State." State flower, yucca. Motto, "Crescit Eundo." (It grows as it goes). Mexico is an Aztec word which is the title of the Aztec national god. First settlement, Santa Fé, 1598.

described in Western States, 18-6425-34;

19-6841-50

made a state, 11-3949

taken from Mexico, 6-1920

Pictures

before and after irrigation, 7-2554

Carlsbad Cavern, 18-6436

flag (in color), 19-7191

forest ranger on patrol, 8-2805

Indian reservations, 19-7240-7241

lumbering in Santa Fé forest, 18-6428

near Taos Junction, 9-3032

Old Palace, Santa Fé, 18-6427

sheep in national forest, 15-5577

stockraising in state, 9-3211

New Netherland, Dutch colony

early history, 2-550

See also New York (colony)

GENERAL INDEX

New Orleans. Famous cotton port of Louisiana. Standing about 100 miles from the mouth of the Mississippi, it was founded in 1717 by the French, and still retains some of its French characteristics. The largest commercial city of the South, it has important sugar-refining and manufacturing industries.

capture by Farragut in 1862, 7-2434
description, 16-5660

Pictures

American Sugar Refinery, 14-4891
Jackson Square, or Place d'Armes, 14-4889
waterfront, 16-5658

New Orleans, Battle of, 5-1706-07

Pictures

New Quebec, northern section in Canada, description, 7-2557-58

New Salem, Illinois, now a state park

Pictures, illustrating Lincoln's life, 3-1048

New Scotland, see Nova Scotia

New South Wales. Oldest Australian state, colonized in 1788; area, 309,432 square miles; capital, Sydney. Here is much of the Australian mountain system, the source of many short streams toward the sea, while an immense area in the interior is watered by the Darling, Lachlan and Murrumbidgee, tributaries of the Murray. The richest part of Australia, New South Wales grows wheat, corn, barley, oats, lucerne, tobacco, sugar, vines and fruit; its vast pastures support millions of sheep and other cattle. Coal is mined at Newcastle and silver at Broken Hill, and tin, copper, lead, antimony and manganese are also found. Sydney, on the magnificent harbor of Port Jackson, is a great commercial and industrial centre and port.

development and difficulties, 7-2468

Pictures

cattle drinking, 7-2462
oxen hauling timber, 4-1261
Sydney, 7-2463

New Sweden, early colony in Delaware, 2-552

New Testament. The second of the two great general divisions of the Scriptures.

New Westminster. One of the largest cities on the mainland of British Columbia, near the mouth of the Fraser River. Here are large lumber and salmon-canning industries.

New Year

celebration of holiday, 6-2094

Poems about

Death of the Old Year, by Lord Tennyson, 17-6109

Ring Out, Wild Bells, by Lord Tennyson, 17-6109

Song for the New Year, by Edmund Gosse, 6-2243

New York (colony), first called New Amsterdam (arranged chronologically)

early history, 2-550
surrender to English in 1664, 2-552
naming of, 2-552
development of, 2-555

New York (city). Commercial capital of America, and after London the greatest city and port in the world. Founded as New Amsterdam by the Dutch in 1621. The original city stood on Manhattan Island, between the Hudson and East rivers; but it also includes The Bronx, Staten Island, and the west end of Long Island. The Brooklyn suspension bridge and other bridges connect this part of the city with Manhattan. As a commercial and shipping centre New York is unrivalled in the western hemisphere; its huge skyscraper buildings and fine parks are famous. The population is very cosmopolitan, and includes more Jews and Irish than any other city in the world.

* What one may see in New York, 17-6207-19

American Museum of Natural History, see

American Museum of Natural History

Board of Child Welfare, 15-5621

Bowling Green, 17-6208

bridges, 1-28-29

Broadway, 17-6210

buildings, height of, 17-6208

Bureau of Child Hygiene, 15-5622

cathedral of St. John the Divine, 17-6216

Chamber of Commerce building, 17-6210

* children, care for, 15-5621-28

churches, 17-6214, 6216

Trinity church, architecture of, 18-6681

City Hall, 17-6210

New York (city) (continued)

Clearing House, 17-6210

College of the City of New York, note on,

12-4312

Columbus Circle, 17-6212

Cooper Union, 17-6218

Custom House, 17-6208

Erie Canal, influence on trade and prosperity, 13-4886

Federal Hall, 17-6210

Fifth Avenue, 17-6212

* fire department, 9-3159-64

Fordham Hospital, note and picture, 15-5487

foreign trade, extent of, 12-4145-46

Fraunces' Tavern, 17-6214; 18-6832

Grant's Tomb, 17-6214

Hall of Records, 17-6210

harbor, first European to enter, 2-677

Herald building, 17-6212

history, early, see New York (colony)

ice supply, 2-529

Jumel Mansion, 17-6214

Metropolitan Life Insurance Building, 17-6210

Metropolitan Museum of Art, see Metropolitan

Museum of Art, New York City

Municipal Building, 17-6210

museums, 17-6216, 6218

See also American Museum of Natural History; Metropolitan Museum of Art

parks, 17-6212, 6214

population, 1920, 8-2676

port problems, 12-4146

Public Library, 17-6218

schools, 15-5621-22; 17-6218

Stock Exchange, 17-6210

Subtreasury Building, 17-6210

Washington Arch, 17-6214

* water supply, 14-5055-60

* *Pictures*, 17-6206-19

American Museum of Natural History,

18-6613, 6615

Broadway, view of, 8-2673

Broadway in 1681, 2-556

Broadway in 1890 and at present, 17-6189

Cathedral of St. John the Divine (graveure),

18-6686

churches (graveure), 18-6686

City Hall, 18-6683

College of the City of New York, 12-4312

Equitable Building fire, 1912, 9-3167

Federal Hall, Wall St., the old City Hall, 5-1695

Fraunces' Tavern, 18-6832

Pennsylvania Station, 2-419

Public Library, 17-6213

St. Patrick's cathedral (graveure), 18-6686

seen across the Hudson River, 10-3729

Singer and Flatiron buildings, 9-3213

sky-line, from harbor, 8-2669

State House in 1679, 2-556

Woolworth Building, elevators, 4-1214

Woolworth Building (graveure), 18-6688

New York (state). Middle Atlantic state; one of the original 13 states; area, 49,204 square miles. Largest city, New York; capital, Albany. The most populous state in the Union, it has extensive agricultural and mining industries, but manufacturing is easily the greatest. The Hudson and Mohawk rivers and the Erie Canal form a waterway between the Atlantic and the Great Lakes, and among the largest cities are Buffalo, Rochester and Syracuse. Abbreviation, N. Y. Nickname, "Empire State." State flower, rose. Motto, "Excelsior." Named for the Duke of York. First settlement, New York, 1613 or 1614, or else near Albany about the same date.

described in Northeastern States, 10-3401-08; 11-3773-82; 12-4145-54

history (arranged chronologically)

Henry Hudson and Half Moon, 1-247, 251

Dutch claim region, 2-550

Indians in, 1-165

English take possession, 2-552

origin of name, 2-552

royal governors, 2-555

signers of Declaration of Independence, 20-7557

in Revolution, 4-1166, 1168, 1172

quarrels with Conn. and N. J., 5-1697

ratified Constitution, 20-7560

Hamilton only New York signer of Constitution, 20-7574

in War of 1812, 5-1704-05

GENERAL INDEX

New York (state) (continued)

See also New York City; Erie Canal; West Point, etc.

travel across, in 1791, 13-4882

Pictures

among the Adirondacks, 12-4151

Capitol at Albany, 11-3779

entering Geneva, 10-3401

flag (in color), 19-7190

fruit farms, 10-3402

Half Moon on Hudson River, 1-247

rocks and streams, 10-3405

See also New York City; Erie Canal; Niagara; West Point, etc.

New York State Barge Canal, 13-4888

New Yorker, fire boat, 9-3162

New Zealand

* **New Zealand**, the beautiful Dominion,

7-2571-81

agriculture, 7-2576

bees imported to fertilize clover, 18-6721-22

area and length, 7-2575

Captain Cook visited, 7-2571

climate, 7-2572, 2574, 2577

forests and lumber, 7-2573, 2579

government, 7-2574, 2576

in World War, 7-2576

number of men sent, 7-2300

map, 7-2575

minerals, 7-2576

named by Tasman, 7-2571

plants introduced, 4-1276

scenery, 7-2574, 2576

Wars between Maoris and English, 7-2572

water power, 7-2576

Pictures, 7-2570-81

cultivating New Zealand flax, 8-2787

forests, 7-2420

power station, 15-5435

sheep going to water, 4-1377

New Zealand Alps, 7-2574, 2576

Pictures, 7-2315, 2318

New Zealand flax, see Phormium

Newark, Canada, see Niagara, Canada

Newark. Largest city of New Jersey, manufacturing chemicals, jewelry, cutlery, leather, hardware, clothing and glass.

fifteenth largest city in U. S., 11-3782

Newbold, Charles, invented iron plow, 19-7211

Newbolt, Sir Henry, see Poetry Index for poems and notes

Newcastle-upon-Tyne. Coal-mining, industrial and shipbuilding centre and port, in Northumberland, England. The chief coal-market of the world, it has been an important place since the Middle Ages; there are a cathedral and remains of a Norman castle and walls.

proverb, "carrying coals to Newcastle," 7-2612

Newcomb, Simon, astronomer, 1-287

estimate about Milky Way, 9-3040

Picture, portrait, 1-281

Newcomen, Thomas, made one of first steam engines, 5-1612

Newfoundland, Dominion of. Oldest British North American colony; area, 155,134 square miles; capital, St. John's. Discovered by John Cabot in 1497, and occupied in 1583 by Sir Humphrey Gilbert, it depends mainly for its prosperity on its valuable fishing and sealing grounds, about \$20,000,000 worth of fish being exported annually. There are iron-ore, timber and paper industries.

fisheries, first, soon after Columbus, 2-677

fishing ships of early days, 8-2980

history

Cabot's voyage to, 8-2980

discovered and claimed for England by Sir Humphrey Gilbert, 14-4962

Picture, coast of, 8-2663

Newfoundland dogs, 2-710, 718

Pictures, 2-710; (graveure), 2-713

Newgate, English prison, 16-5700-02

Newlands, J. A. R., and grouping of elements, 12-4291

Newman, John Henry, hymn-writer, 12-4440

See also Poetry Index for poem and note

Picture, portrait, 12-4435

Newnes, Sir George, sent out Southern Cross, 14-5091

Newport, R. I. *Pictures*, 12-4149

Newport News. Seaport of Virginia, on Hampton Roads. It has a fine harbor and one of the largest shipyards in the world.

Newspapers

large circulation through modern printing methods, 9-3390

Questions about

How can a newspaper be made for a cent or two? 17-6178-79

When did newspapers first begin? 7-2483

Newton, Sir Isaac

discoveries and influence, 1-282-83

and Kepler's laws of planetary motion, 13-4795

discoveries in electricity, 4-1244; 16-5666

discovery of law of gravitation, 1-142

experiments and theory about light, 16-5807, 5810

laws of motion, 13-4667-68

study of moon, 10-3536

Pictures, portrait, 1-281

portrait (in group), 4-1247

scenes from his life, 1-285

Newton, John, and William Cowper, 6-2030

Picture, portrait, 6-2027

Newts, 15-5457-58

Pictures, 15-5457

Ney, Michel, Marshal

led charges at Waterloo, 6-2208

Niagara, Canada, formerly Newark, 6-1958

first Assembly of Upper Canada met there in 1792, 3-944

Niagara Falls. Stupendous falls of the Niagara River, which divides Ontario, Canada, from New York. The cataract over which 12 million cubic feet of water flow in a minute, is divided into two by Goat Island: the Horseshoe Falls on the Canadian side are 158 feet high, 2,550 feet across, and the American Falls are 167 feet high and 1,060 feet across. The force of the water wears away the edge of the Horseshoe Falls at the rate of 2½ to 4 feet a year. Electrical power is generated by diverting the waters of the falls through tunnels.

description of, 6-1956, 1958

Pictures, 6-1957; 7-2541; 12-4151

falls and power house, 15-5434

Niall of the Nine Hostages, and St. Patrick, 8-2930

Nibelungenlied, place in German literature, 17-6266

Nicaragua. Republic of Central America; area, 49,200 square miles; capital, Managua. The most prosperous parts lie toward the Pacific, the Mosquito Coast on the east being marshy and unhealthy, though the jungles yield cedar, gums and medicinal plants. Coffee, hides, fruit and rubber are the chief exports.

climate and products, 19-7142

rare stamps of, 16-5888

Nice. One of the largest French Riviera towns, founded by the Greeks as Nicaea. The old town has narrow and picturesque streets; the new town has splendid boulevards, and is famous as a health resort.

popular as a resort, 11-3820

won for France under Napoleon III, 10-3573; 12-4412

Nicholas, St.

and Santa Claus, 17-6102-04

story of, 6-1997

Picture, helping the poor, 6-1990

Nicholas, king of Montenegro, 17-6346

Nicholas I., tsar of Russia, 16-5694

Nicholas II., tsar of Russia, 16-5696

Nicholas Nickleby, by Dickens, scene from,

* 16-5682-89

Nichols, Ernest Fox, and theory of light,

16-5809-10

Nicholson, Sir Francis, English officer

captured Port Royal, Acadia, 2-683

Nicholson, Judge, and Star-Spangled Banner,

18-6512

Nicholson, William, British painter, 8-2859

Nicholson, William, English scientist, and the printing-press, 9-3389

discoveries in electricity, 16-5671

Nickel (Ni). A silvery white metal that does not tarnish when exposed to the air. It is not found in a pure state but with cobalt, iron or arsenic. These ores are smaltite, niccolite and millerite. Canada, in the Sudbury region, produces four-fifths of the world's supply of nickel.

Nicol, J. Watson, artist

Picture. Meeting between Rob Roy and Bailie

Nicol Jarvie, 7-2629

GENERAL INDEX

Nicolls, Richard (1624-72). A British soldier and colonial governor in North America. In 1664, in command of an English fleet, he took New Amsterdam and called it New York.

Nicosia, capital of Cyprus, 9-3182

Nicotine ($C_{10}H_{14}N_2$). A volatile and poisonous alkaloid obtained from tobacco, of which it is the base. The liquid it forms is clear, colorless and oily. In combination with acids it produces pungent and acrid salts.

Niehaus, Charles H., American sculptor, 14-4939
Niemen. River rising near Minsk, Russia, and flowing past Grodno, Kovno, capital of Lithuania, and Tilsit into the Baltic. 500 miles.

Niepce, Joseph Nicéphore. French inventor; born, Chalon-sur-Saône, 1765; died near there, 1833; co-operated with Daguerre in the invention of photography.

Niepotomice, Poland, memorial mound at, 13-4690

Nietzsche, Friedrich Wilhelm, German philosopher, 17-6415

Picture, portrait, 17-6415

Niger. Great African river in the French Sudan and Nigeria. Rising on the border of Sierra Leone, it flows into the Gulf of Guinea. Timbuctoo stands on its upper course. 2,600 miles.

a river of the future, 18-6806

discovered by Mungo Park, 2-467

Lander traced to its mouth, 2-467

Nigeria, account of, 9-3056

Night

caused by spinning of the earth, 1-236

length changed by earth's motion, 1-18

length of, in summer and in winter, 8-2792

Poems about

Night, by William Blake, 17-6376

Night, by P. B. Shelley, 14-5240

Of the Stilly Night, by Thomas Moore, 16-6992

Questions about

Have things any color at night? 8-2874

Is it darkest just before dawn? 12-4506

Why are there more stars some nights than others? 11-3977

Why is it dark at night? 1-78

Nighthawks, birds

account of, 9-3372; 13-4831

nightjars, or nighthawks, of southern U. S., 14-5022

western, 14-5146

Pictures, 9-3369

eggs, 9-3369

Pictures (in color), 8-2895; 13-4842

Nightingale, Florence, life of, * 16-5699-5706

Nightingales, birds

account of, 9-3140

Virginia nightingale, name for cardinal, 8-2973

Poems about

Nightingale and Glow-worm, by William Cowper, 2-606

Ode to a Nightingale, by John Keats, 5-1886

To the Nightingale, by John Milton, 14-5238

Pictures, 9-3137; (in color), 8-2897

Nightjars, birds, *see* Nighthawks

Nightmares, causes of, 9-3099

origin of word, 10-3477

Nightshade

black, description, 15-5394-95

deadly

atropine from, 8-2912

description, 17-6130

note on, 17-6126

relative of potato, 7-2618

woody, or bittersweet, 14-4976

description of, for game, 16-5771

Pictures

black nightshade, 15-5395

black nightshade (in color) 14-4996

fruit (in color) 11-4028

deadly nightshade, 8-2913; 17-6126

fruit (in color) 11-4028

enchanter's nightshade (in color) 14-4991

woody nightshade or bittersweet, 14-4977

woody nightshade or bittersweet, (in color) 13-4880

berries (in color), 11-4028

Nightshade Family, in botany, 13-4875

Nihilism. Violent political creed started in the 19th century and very popular in Russia, where Nihilists assassinated, among others, the Tsar Alexander II in 1881.

Niihan, one of Hawaiian Islands, 15-5448

Nijni-Novgorod. Russian commercial city on the Volga, famous for its fairs.

meeting-place for merchants, 16-5858

Picture, 16-5853

Nike, Greek goddess of victory, 9-3234

See also Victory, Statues of

Nikko, Japan, description, 2-570

Pictures

approach to shrines, 2-567

stone figures of Buddha, 2-569

Nikosthenes, painter of Greek vases, 2-451

Nil desperandum. Latin for "never despair."

Nile. Longest African river, draining 1,100,000 square miles. Rising in Lake Victoria Nyanza, it flows through the Sudan and Egypt into the Mediterranean, which it enters through a wide delta. Its value to Egypt is immense, for its summer flood annually fertilizes a vast area of land. Surplus water is conserved for irrigation by the Assouan Dam, and a still larger dam is being built on the Blue Nile at Sennar in the Sudan. When the Nile is high, it is navigable up to Gondokoro, 2,900 miles from its mouth, but otherwise six cataracts prevent navigation between Assouan and Khartoum. The Bahr el Ghazal, Blue Nile and Atbara are its chief tributaries; Khartoum, Omdurman, Wadi Halfa, Assouan, Assiout, Cairo, Iamietta and Rosetta stand on its banks. 3,473 miles.

delta of, 5-1607

map of delta, 7-2537

early boat, 11-3911

sources of, 18-6806

sources discovered, 2 lakes, 2-471

source of Blue Nile found by Bruce, 2-466

worshiped by old Egyptians, 7-2538

Question about. What is the sudd on the Nile? 8-3016

Pictures

Assouan dam, 7-2553

first cataract, 7-2541

Ripon Falls, 7-2541

trading boats on, 7-2540

Nile, Battle of the, 6-2203; 10-3570

Nile Star, Egyptian name for Sirius, 6-1970

Nile Valley, Egypt

agriculture, 3-807

irrigation by Assouan dam, 7-2546

Nilgai, animal, 4-1444

Picture, 4-1442

Nimbus clouds. *Pictures*, with note, 8-2927

Nimes. Ancient cathedral city of Languedoc, France, famous for its Roman remains. Its chief ancient monuments are a mausoleum, baths, two gateways and an amphitheatre to seat 20,000 spectators; close by is the Pont du Gard, the most perfect existing Roman aqueduct. Nimes manufactures silk and cotton goods, boots, carpets and shawls.

Pictures, 10-3439

Maison Carrée (gravure) 15-5351

Pont du Gard, Roman aqueduct (gravure) 15-5351

Nimes, Temple of. *Picture*, 8-2610

Nimrod. Son of Cush and grandson of Ham. Noah's second son, mentioned in Genesis x, 8-10 as a powerful king and "a mighty hunter before the Lord." Among the cities he ruled were Babel, Erech, Accad and Calneh, "in the land of Shinar," which we know better as Babylonia. When we speak of anyone now as a Nimrod we refer to his prowess in hunting.

Nimrod, ship, in antarctic exploration, 14-5093

Nimrud, modern name for Calah, 2-646, 659

Picture, 2-660

Nine Holes, game, directions for playing, 4-1400

Ninebark, note and *picture*, 15-5607

Nineteenth century, history, in Great Britain, 7-2293-2300

Nineveh, city of Assyria

architecture, 14-5209

built by Babylonians, 2-652

fall of, 2-658-59

libraries of clay books, 2-657

Picture, Palace of Sennacherib, 14-5207

Ningpo. Great port of central China, on the Yung. Famous for its temples, pagodas, stone bridges, library and gold and silver work.

Ninnis, Lieutenant, antarctic explorer, 14-5094

Niobe, statues of, 12-4330

Picture, Niobe shielding her youngest daughter (gravure) 12-4336

GENERAL INDEX

Nipigon Lake. In the province of Ontario, Canada, 1,730 square miles in area.

source of St. Lawrence River, 6-1956

Nipple-wort, flower

Picture, (in color) 14-4996

Nirvana and Buddhism, 9-3086

Nithsdale, William Maxwell, 5th earl of, escape from Tower of London, 12-4225

Nitrates. The salts of nitric acid. Some nitrates are used for medicinal purposes. Some are used in the manufacture of indelible ink, some in fireworks and some in photography. Nitrate of soda (sodium nitrate) is valuable as a fertilizer, restoring nitrogen to the soil.

chemical manufacture and use, 13-4530

Chilean deposits, 19-7038

Nitric acid (HNO₃). An acid obtained by the distillation of sulphuric acid and sodium nitrate mixed together. In a pure state it is a colorless liquid with a strong and unpleasant smell and a corrosive effect on animal and vegetable matter. It is a powerful oxidizing agent. In nature it is found in combination with potash, soda, lime and magnesia. In the arts it is known as aqua fortis, and is used for etching on copper and steel. Industrially it is used in making coal-tar dyes, explosives, etc.

Nitrogen

and protoplasm, 2-664

boiling point of, 8-3014

from decomposed plants and animals, 1-312

in electric lamps, 16-5939

microbes use to enrich soil, 2-557

obtained from air by electricity, 16-5804

produced by electric furnace, 16-5946, 5948

Nitrogen peroxid, in air at seaside, 6-2252

Nitroglycerine; more properly, **glyceryl trinitrate** (C₃H₅(NO₃)₃). A liquid, heavy, oily and highly explosive, in a pure state colorless; produced by the action of a mixture of nitric and sulphuric acids upon glycerine. Though in the open it burns quietly, under percussion or when heated in a closed vessel it explodes, setting free gas of about 10,000 times its own volume. Combined with a clay it makes dynamite for blasting; poured upon cotton, guncotton for ammunition, etc.

use in drilling oil wells, 13-4541

Nitrous oxid (N₂O). A gas, colorless, transparent, slightly sweet of taste and odor. It is more generally known as laughing gas, a name formerly given because of its effect upon behavior and facial expression when inhaled in small quantities. Larger quantities cause unconsciousness and insensibility to pain.

as anæsthetic, 8-2729

Noah. A patriarch of Bible times, whose life story is told in Genesis v. 28-x. In the great Deluge he saved his family and many animals (two of each kind) in the ark which he had built at the direction of God.

Nobel, Alfred, and Nobel Prize, 17-6288

Nobel Prize

awarded to Sir Joseph Thomson, 4-1254

Question about. What is the Nobel Prize?

17-6288

Nobile, Umberto. Italian navigator, airship constructor and flier. Born, Italy, 1885. Built the Norge and was one of the leaders in the Amundsen-Ellsworth-Nobile successful trans-Polar flight, May, 1926. See Norge.

North Pole expeditions, 1-170; 13-4722-23

Nobility, The. Nobles or titled persons in a state taken together as a body; in Great Britain and Ireland the peerage.

Nocturnes, Roman fire officials, 9-3157

Noddies, birds, 11-4122; 14-5017-18

Picture, 14-5019

Notes and overtones in sound, 19-6854

Noël, origin of word, 18-6466

Noguchi, Hideyo, physician, discoveries in yellow fever, 15-5491

Noises

caused by irregular sound waves, 18-6438

how different from music, 5-1750

See also Sound

Questions about

Why can we hear a noise like waves in a seashell? 5-1608

Why do we see the flash from a gun before we hear the noise? 10-3475

Why does a noise occasionally break a window? 7-2611

Noises—Questions about (continued)

Why does a stick make a noise when swung in the air? 12-4281

Why does furniture make a noise at night? 9-3100

Nolens volens. Latin for "unwilling or willing"; in English, willy-nilly.

Nom de guerre. French for "war name"; assumed name.

Nombre de Dios, on Isthmus of Panama

Sir Francis Drake's attack on, 14-4963

Nome, Alaska

epidemic, and bravery of Balto, 16-5735

gold mines, discovery, 10-3584

Non compos mentis. Latin for "not of sound mind."

Non-intercourse Act. An act passed in 1809 by the U. S. Congress in requital of certain claims that had been made by France and Great Britain and that affected the commerce of the U. S. and the rights of U. S. seamen. By this act French and British merchant vessels were prohibited from entering U. S. ports, and goods grown in the two countries were excluded from importation.

Non-partisan League. A league formed among the farmers of North Dakota in 1915, and now recognized as a strong political influence in that state, South Dakota, Minnesota and other Northwestern states. The measures it advocates include state ownership of banks, mills, grain elevators, etc.

Nonconformists, given civic rights in England, 7-2298

Nonpareil, bird, description, 14-5024

Nordcaper, kind of whale, 6-2216

Nordenskiöld, Nils A. E., Baron, arctic explorer, 8-2988; 13-4712

Picture, portrait, 8-2988

Nordenskiöld, Otto, antarctic explorer, 14-5094

Nordic races. A branch of the white race in Northern Europe. They are tall, red- or yellow-haired, their eyes gray-green or blue-gray, and long-headed. The Scandinavians to-day and the ancient Goths are typical Nordic peoples.

present status, 15-5291

Norfolk. English eastern county; area, 2,054 square miles; capital, Norwich. Here are Yarmouth, King's Lynn and Thetford, the watering-places of Cromer and Hunstanton, the Broads, and the mouth of the Ouse; fishing and agriculture are important.

Norfolk. Port of Virginia, on an arm of Chesapeake Bay. Lumber, fruit, grain and cotton are the principal exports.

Norfolk Island. British Pacific island, about 400 miles from New Zealand. The descendants of the Bounty mutineers were brought here from Pitcairn in 1856.

Norge. The airship of the Amundsen-Ellsworth-Nobile expedition which sailed from Spitzbergen across the North Pole to Alaska in 71 hours. The Pole was crossed in the early morning, May 12, 1926. The Norge which was constructed in Italy belonged to the semi-rigid type of dirigible, that is to say she had a rigid aluminum armor over half the body only. She was 340 feet long, carried seven tons of fuel and 670,000 cubic feet of gas. She had a cruising range of 3,200 miles. From her body hung four gondolas, three containing Maybach engines and one the steering equipment.

Norinder, Harald, Swedish scientist, discoveries about thunderstorms, 16-5670

Norman architecture, see Architecture, Norman

Norman Conquest of England, see England—history

Normandy. One of the most important of the old French provinces, bordering the English Channel. At the beginning of the 10th century it was seized by the Northmen under Duke Rollo; their descendants invaded England with William the Conqueror, Normandy being united with England up to 1204. It was twice reconquered during the Hundred Years' War, the French finally regaining it in 1450. Among its towns are: the old capital city of Rouen; the important ports of Havre, Cherbourg and Dieppe; and the watering-places of Trouville, Etretat and Deauville. It contains also the beautiful old towns of Lisieux, Caen, and Bayeux, Falaise, the birthplace of William the Conqueror, and Mont St. Michel.

GENERAL INDEX

Normandy (continued)

description, 11-3821
English kings lost, during John's reign, 5-1570
settled by Northmen, 4-1436; 10-3432

Normans in southern Italy, 12-4408

Picture, ship of, 11-3913

Norsemen, see Northmen

North America

* before white men, 1-153-65

birds

* northern part, 13-4759-66, 4829-44

* southern part, 14-5017-25

* western part, 14-5133-48

discovery by Leif Ericson, 1-241

* exploration, 1-241-54

flowers

* of eastern part, 17-6273-82; 18-6567-72

* of Pacific Coast, 19-6927-40

* of the Middle West, 18-6655-67

* of the South, 19-7085-95

geological history, 1-157-59

geology, 3-773-75

map, 1-152

physical geography, 1-153-58

See also names of countries

North Borneo. British colony in the East Indies; area, 31,000 square miles; capital, Sandakan. Timber, rubber, tobacco, sago, rice, gutta-percha, coconuts and rattans are produced.

North Cape. Headland on the island of Magerö, in the extreme north of Norway. It is frequently visited by tourists in the summer-time to see the midnight sun.

when named, 8-2982

North Carolina. South Atlantic state, partially explored by Raleigh's expedition in 1584; area, 52,426 square miles; capital, Raleigh. Largest city, Winston-Salem. Corn, cotton, tobacco, wheat, sweet potatoes and oats are extensively produced; first state in manufacture of tobacco, and second in cotton. Lumbering and furniture-manufacturing are important. Wilmington, the chief port. Abbreviation, N. C. Nickname, "Old North State" or "Turpentine State." Flower, goldenrod. Motto, "Esse quam videri" (To be, rather than to seem). The Carolinas may have been named for Charles IX of France by Jean Ribault in 1562, or they may have been named in honor of King Charles I of England. First settlement thought to have been made on Albemarle Sound, 1653.

described in Southern States, 13-4517-28;

14-4889-4900

history (arranged chronologically)

discovery and exploration, 14-4966-67;

17-6333-37

granted to Lords Proprietors, 2-553-54

Daniel Boone's home, 6-1906

in the Revolution, 4-1164, 1166, 1172

Mecklenburg Declaration, 4-1164

signers of Declaration of Independence,

20-7557

state of Franklin, 6-1908

signers of Constitution, 20-7574

slow to ratify Constitution, 20-7560

seceded (May 20, 1861), 7-2430

in Civil War, 7-2433, 2438, 2440, 2442

manufactures cotton, furniture and tobacco,

14-4890, 5168

presidents born in state, 8-2676

See also Lost Colony of Roanoke, 17-6333-37

Pictures

Capitol at Raleigh, 17-6337

cotton field and cotton mill, 13-4525

cotton mills at Greensboro, 14-5166

curing tobacco, 13-4525

flag (in color), 19-7190

Indians, 17-6334-36

Old Hickory Highway, 14-4895

picking cotton near Shelby, 13-4517

North Carolina, University of, 12-4308, 4310

North Central States: * 15-5273-84; 17-6037-48

North Channel. Channel dividing Ireland from Scotland and connecting the Irish Sea with the Atlantic.

North Dakota. Northern prairie state; area, 70,837 square miles; capital, Bismarck. Largest city, Fargo. Wheat-growing and stock-raising are carried on; and grain and dairy products are manufactured. Abbreviation, N. Dak. Nickname, "Flickertail State" or "Sioux State." Flower, wild prairie rose. Motto, "Liberty and

North Dakota (continued)

Union, one and inseparable, now and forever." Dakota, a Sioux word, means "alliance of friends." First settlement, Pembina, 1812.

described in North Central States, 15-5273-84; 17-6037-48

in Louisiana Purchase, 5-1702

made a state, 11-3944

production of wheat, 15-5278

Sully's Hill National Park, 7-2291

Pictures

alfalfa and wheat fields, 15-5279

flag (in color), 19-7191

North Island, New Zealand, 7-2574

North Magnetic Pole, see Magnetic Poles

North Pole

* search for, 13-4707-23

Amundsen's flight over, 1-170; 13-4722-23

Picture (gravure), 13-frontis.

Byrd's flight over, 1-170, 181; 13-4722

Picture (gravure), 13-frontis.

discovered by Peary, 13-4721

length of days and nights, 8-2792

See also Arctic regions

Questions about

Do the people at the Poles spin round like a top? 6-2252

Does the Equator go round faster than the Poles? 14-5222

Picture, as Peary left it, 13-4717

North Sea. Branch of the Atlantic lying between Great Britain and the Continent. Its average depth is only 120 feet in the south and 350 feet in the north; it contains the Dogger, Jutland and Great Fisher banks, on all of which vast numbers of cod and herring are caught. Commercially it is of immense importance, its great ports including Aberdeen, Dundee, Leith, Newcastle, Sunderland, Hull, Grimsby, London, Antwerp, Rotterdam, Amsterdam, Bremen, Hamburg, Gothenburg, Oslo and Bergen.

North Sea Canal, Holland, 15-5564

North Star, see Pole Star.

Northallerton, Battle of, 12-4208

Picture, 12-4205

Northeast passage to Asia

Nordenskiöld first man through, 8-2988

search for, by Willoughby's expedition, 8-2982

Northeastern States: * 10-3401-08; 11-3773-82; 12-4145-54

Northern Ireland. Union of the six counties of Antrim, Down, Armagh, Londonderry, Tyrone and Fermanagh; area, 5,263 square miles; capital, Belfast.

Northern Lights, see Aurora borealis.

Northmen

* character and history, 15-5291-92

and Charlemagne, anecdote, 10-3430

attacks on Scotland, 4-1436

in England

Alfred the Great's victories over, 13-4585-86

invasion of England, 4-1432

in France

invasion of France, 10-3431

settled Normandy, 4-1436; 10-3432

in North America, before Columbus, 1-241-42

in Russia, 16-5691

literature, Icelandic sagas, 19-7009-10

ships, with pictures, 1-243

See also Vikings; Danes

Northumberland. Northernmost English county; area, 2,018 square miles; capitals, Alnwick and Newcastle-upon-Tyne. Here are the Tyne, the Cheviots, and a large coal-field; towns include Tynemouth, North Shields, Wallsend, Blyth, Berwick-on-Tweed, Morpeth and Hexham.

Northwest Company, or, Northwest Fur Trading Company, 12-4338-39

Northwest passage to Asia

* search for, 8-2978-89

Frobisher's search for, 14-4960

Northwest Territories, Canada

became part of Dominion, 4-1489

description, 7-2560

government, 4-1490; 5-1840

work of mounted police, 16-5831-38

Northwest Territory, U. S. history, 6-1908

Northwestern University, Evanston, note and

picture, 19-7123

Norton, Mrs. Caroline Sheridan, see Poetry Index

for poem and note

Norton, Thomas, author of Gorboduc, 2-721

GENERAL INDEX

Norway. Kingdom of northern Europe; area, 125,000 square miles; capital, Oslo (formerly Christiania). It consists largely of mountain tablelands, and only three per cent of its area is fit for cultivation, oats, barley, rye and potatoes being the chief crops. Fishing is the chief occupation, the cod, smelt and sprat fisheries being very important; but the dairy-farming, timber, iron-ore, paper and pottery industries are increasing. The greater part of the population lives along the coast or on the fiords, the large towns of Bergen, Stavanger, Trondhjem and Drammen all being ports. Norway formed part of Denmark from 1397 to 1814, when it was united with Sweden, and it was not until 1905 that it again became a separate state.

* description, 15-5298-5302

cities, 15-5302

history, 15-5291-92, 5294

language, effort to make different from Danish, 19-7012

literature, 19-7012-14

map, 15-5301

national song, Sons of Dear Norway, 17-6253

shipping, 15-5300

water power, 15-5430

Pictures, 15-5298-5303

Bandak Nordsjo Canal, 13-4790

Midnight-sun on Hardanger Fiord, 8-2793

sawmills, 15-5431

Norway spruce, see Spruce trees

Norwegian literature, * 19-7012-14

Norwich school of painters, 6-2230

Norwood, Robert, Canadian author, 14-5109

Nose

bleeding, how to stop, 11-4082

structure of, 4-1326; 11-3956

why breathe through, 4-1326, 1328

Pictures, diagrams showing structure, 11-3955

Nota bene. Latin for "note well"; usually written N.B.

Notary public. In law, a public officer with legal authority to put into writing deeds, contracts, etc., and to authenticate them or certify their accuracy, usually under an official seal; also to take affidavits and administer oaths.

Notebook for history, how to make, 17-6392

Notre Dame, cathedral, Paris, 17-6158

Pictures, 10-3437; 12-4469; (gravure), 1-72;

17-6168

Notre Dame, University of, note and picture, 12-4416

Nottingham. Capital of Nottinghamshire, England. Famous especially for its lace industry, it also has considerable tobacco, engineering and leather trades, a historic castle and a Roman Catholic cathedral. Here Charles Stuart set up his standard in 1642.

Notus, south wind, (the same as Auster), in mythology, 9-3234

Nougat, candy, recipe, 11-3856

Noun. In grammar, a word that gives the name of anything. It is a part of speech used as the subject or the object of a verb, or governed by a preposition.

Nova Aquila, new star, 11-4038

Nova Scotia. Canadian eastern maritime province; area, 21,500 square miles; capital, Halifax. Much fruit is grown, the Valley of Annapolis alone exporting millions of barrels of apples a year; dairying is important and the wool clip exceeds a million pounds weight. Around Sydney, Cape Breton Island, there are important coal mines, while Halifax is a great port for transatlantic liners.

history

granted to Sir William Alexander, 1621, 2-682

settled partly by Loyalists, 3-944

minerals, 1-108

novels about, 15-5370

physical geography, 1-166

story about, Clockmaker, or, Sam Slick,

10-3577-84

Pictures, 3-940

Nova Scotian, journal, 14-5105

Nova Zembla. Russian Arctic archipelago covering about 35,000 square miles.

Novelists, see Fiction, also names of novelists

November. The eleventh month in our year, consisting of 30 days. In the old Roman year it was the ninth month, the name coming from Latin *novem*, nine.

Novgorod. Historic city of northwest Russia, having been the cradle of the Russian nation. It once had 400,000 inhabitants and was called Novgorod the Great. Its 11th-century cathedral is modeled after St. Sophia at Constantinople.

before rise of Petrograd, 16-5858

Novikov, Nicholas, Russian author, 19-6907

Noyes, Alred, English poet, 12-4233-34

See also Poetry Index for poem and note

Noyon. Ancient French city on the Oise, with a fine 12th-century cathedral. It was a residence of Charlemagne and the birthplace of Calvin.

story of brave maid, 11-3806

Picture, cathedral (gravure) 17-6171-72

Nucleus

of a cell, 2-662-63

of an atom, 12-4289, 4291

Nuisance. Such behavior or use of one's property as may, though without malicious or criminal intention, do wrong to others by disturbing them in the enjoyment of their property or preventing them from the exercise of common rights.

Nulli secundus. Latin for "second to none."

Nullification and states' rights

beginning of disputes on, 11-3939

Calhoun's belief about, 10-3492

Numbers

learning by games, see Games, Educational

See also Arithmetic

Nuremberg. Second largest Bavarian city, famous for its manufacture of toys. Despite its commercial importance, it is extremely picturesque, and has medieval houses, churches and walls. No other large city in Germany possesses so picturesque an aspect.

account of, 12-4170

Frauenkirche, and its clock, 17-6161

Picture, (gravure) 12-4175

Nurse, first scientific, Florence Nightingale,

16-5706

Nursery rhymes, see Poetry Index for first lines and titles

For list, see 20-7683

Nutcrackers, birds

account of, 8-2891-92

Clark's, account of, 14-5141-42

Picture, Clark's nutcracker, 14-5142

Nuthatches, birds, 9-3136, 3138; 13-4764;

14-5139

Picture, (in color) 9-3131

Nutmegs, 8-2992, 2994

Pictures, plant, 8-2990; (in color) 8-2998

Nuts

* Natural history of a nut, 6-2275-80

map, showing sources, 19-7217

toy boats made from, 11-4083

Pictures, 6-2274-79

Nux vomica, 8-2912

Picture, flower and fruit (in color) 8-2999

Nyala, animal, 4-1443

Nyasa, Lake. Southernmost and third largest of the great lakes of Central Africa, lying between Nyasaland, Portuguese East Africa and Tanganyika Territory. 11,000 square miles in extent, it is 350 miles long, its greatest breadth being 45 miles. Livingstone and Albrecht Roscher explored it in 1859.

Nyasaland. British Central African protectorate; area, 40,000 square miles; capital, Zomba. It produces cotton, tobacco, coffee, chillies, tea, rubber, rice, corn and wheat, shipped mostly by way of Beira. Blantyre is the chief commercial centre.

account of, 9-3052



O. Henry, pen name of William Sydney Porter, 14-5009-10

Picture, portrait, 14-5010

Oahu, one of Hawaiian Islands, 15-5448

Oak-apples

account of, 12-4279

cause of, 10-2580

Oak-galls, see Oak-apples

GENERAL INDEX

Oak trees

- * description and varieties, 12-4245-46, 4253
- commercial uses of, 12-4379
- galls produced by wasps, 17-6232
- live oak, 12-4246; 13-4638
- pin oak, 12-4597, 4512
- white oak, 13-4642
- wood of, how to identify, 10-3631; 16-5982
- used for furniture, 18-6768
- Questions about*
 - What is the growth found on many oak trees? 10-3580
 - Why does a carpenter seldom use nails in oak? 14-5084
- Pictures*, 12-4253
- pin oak, 12-4509
- Turkey or moss-cupped, fruit of (in color) 11-4028

Oakland. City 6 miles across the bay from San Francisco, California. Beautifully situated, with a fine climate, Oakland has also a large commerce as a railroad terminus and as a shipping centre. Its chief industries are shipbuilding, marble working, smelting, planing, fruit-canning and windmill factories.

Oarfish, 16-5899

Picture, (in color) 16-5787

Oases

- fertility of, 7-2421
- in the Libyan Desert, 18-6743
- Oat-grass**, fodder-grass, 7-2410
- Picture*, with note, 10-3655; (in color), 10-3522
- Oates, L. E. G.**, on Scott's antarctic expedition, 14-5096, 5098, 5100

Pictures
 portrait, 14-5100
 walks out into the blizzard, 14-5088

Oath. An affirmation or declaration or some other procedure which is authorized by law for attesting the truth of what is stated.

Oatmeal, food value, 7-2425

Oats

- account of, 5-1851-52
- as food, 7-2424-25
- bread made from, 1-372
- Pictures*, 5-1850-51, 1854
- Oats, Wild**, note and picture, 10-3661
- Obadian.** A Hebrew prophet, author of the short book which bears his name. Lived about 585 B.C.

Obelisks

- in Egypt, 3-816; 14-5212
- in London (Cleopatra's needle), 14-5212
- Pictures*, 3-813; 10-3547
- in Central Park, New York city, 17-6216

Oberammergau. A village in upper Bavaria, 45 miles from Munich, in which a famous Passion Play is performed once in every 10 years.

Obesity. The state of being very fat or fleshy.

Obi. Great Siberian river, rising in the Altai Mountains and flowing into the Arctic Ocean. With the Irtysh, it drains 1,125,000 square miles, and measures 2,500 miles.

Obiter dictum. Incidental opinion expressed by a judge, that is to say, not essential to his decision in the case under trial. *Obiter Dicta* is the title of a volume of essays by Augustine Birrell.

Object game, 8-2745

Obregon, Alvaro, president of Mexico, 19-7140

O'Brien, L. R., Canadian painter, 10-3700

Observatories

- Arequipa, South America, 1-288
- Flagstaff, Arizona, 1-287
- Greenwich, 1-283
- Tycho Brahe's, 1-206
- Vorke's and Mount Wilson, 1-288

Obsidian. A volcanic rock which in appearance and texture is very like bottle-glass. It occurs in black, brown, grayish green and other colors. Primitive peoples used it for making knives, spear-heads and other implements.

Obstacle race, 10-1769

Occult. Hidden or secret; thus, mysterious or supernatural.

Ocean. *See* Sea

Ocean currents. *See* Sea—currents

Ocean Island. headquarters of the Gilbert and Ellice Colony, 9-2188

Ocean spray, shrub, description, 19-6924

Oceania

* Islands of the South Pacific, 9-3295-3304

Oceania (continued)

- boundaries of, 9-3295
- map of island groups, 9-3294
- See also* Australia; Micronesia; New Zealand; Polynesia; South Seas

Pictures, island life, 9-3295-3303

Oceanids, in mythology, 9-3235

Oceanus, in mythology, 9-3235

Ocelot, animal. *Picture*, 2-496

Ocre. A natural earth in which iron is mixed with earthy material. It is commonly red, reddish brown or yellow, and is used as a pigment in making paints.

Ochs, Adolph S., note and portrait, 19-7165

O'Connell, Daniel, and reforms in Ireland, 8-2936

O'Connell, William Henry (1859—). An American prelate of the Roman Catholic Church, Archbishop of Boston, elevated to the cardinalate in 1911.

Octave, in music, 19-6898

Octavia, Nero's wife

Picture, bust of Octavia, 5-1862

Octavius, Gaius, *see* Augustus (Gaius Octavius)

October. The tenth month in our year, consisting of 31 days. It was the eighth month in the old Roman year, from Latin *octo*, eight.

Octopus, account of, 16-5898

luminous, 15-5540

Picture, 16-5895

Octroi. French term for duties collected at the gates of a city or town.

Ode, definition, 1-223

Oder. German river rising in Czecho-Slovakia and flowing through Silesia and Prussia into the Baltic. It passes Oppeln, Brieg, Breslau, Frankfurt and Stettin. 550 miles.

Odessa, Russia, 16-5858

Picture, Richelieu stairway, 16-5855

Odin, or Woden, Norse god, 12-4202

Odysseus, Greek name for Ulysses, 6-1984

See also Ulysses

Odyssey, by Homer, story of, * 6-1984-86

quotation from, 11-3912

Oersted, Hans Christian. Danish electrician and physicist, discoverer of electromagnetism; born, Rudkøbing, 1777; died, 1851.

discoveries in electricity, 16-5671

effect of electric current, 4-1251

literary ability, 19-7011

Picture, portrait, 4-1243

Offero became St. Christopher, 6-1992

Ogilvie, Will H., *see* Poetry Index for poems and notes

Ogle, Henry, made a mechanical reaper, 19-7210

Oglethorpe, James Edward. English general and colonizer; born, London, 1696; died, Cranham Hall, Essex, England, 1785.

founded Georgia, 2-554

O'Hara, Theodore, *see* Poetry Index for poem and note

O'Hara, Lake, Canada. *Picture*, 11-116

O'Higgins, Bernardo, helped Chile win independence, 19-6864

director general of Chile, 19-7036

Picture, portrait in group, 19-7039

Ohio. State bordering on Lake Erie; area, 41,040 square miles; capital, Columbus. Largest city, Cleveland. One of the richest states in the Union; agriculture is important, but it has 12,000 square miles of coal-fields, much oil, and large iron, glass, pottery and textile industries. Among other important cities are Cincinnati, Toledo, Akron, Dayton and Youngstown. Nickname, "Buckeye State." State flower, scarlet carnation. Motto, "Imperium in imperio" (An empire within an empire). Ohio is an Iroquois word meaning "great." First settlement, Marietta, 1788.

described in North Central States, 15-5273-84; 17-6027-48

early history (arranged chronologically)

claimed by France, 3-780

Ohio Company formed, 3-780

attached to territory, 1773, 3-911

government of Northwest Territory, 6-1908

first settlements, 6-1908

hardships of early settlers, 6-1910

made a state, 6-1908

in Ohio Hall, 18-2880, 5281

presidents from, 8-6074

some Ohio cities, 17-6041, 6046

Pictures

Cincinnati, view of, 17-6047

GENERAL INDEX

Ohio—*Pictures (continued)*

Cleveland, views of, 17-6043
early travel on Ohio River, 6-1909
flag (in color), 19-7190
Muskingum River, 15-5283
where Ivory soap is made, 17-6039
Ohio Company, formed 1749, 3-780
Ohio River. Chief left-bank tributary of the Mississippi, formed by junction of the Allegheny and Monongahela. Its basin is one of the chief American industrial areas, and it passes Pittsburgh, Cincinnati, Louisville, Evansville and Cairo. 975 miles.
Ohio Valley, claimed by French and English, 2-683; 3-786
Øhlenschläger, Adam, Danish poet, known as "Scandinavian King of Song," 19-7011
Picture, portrait, 19-7009

Ohm, George Simon

discoveries in electricity, 16-5673
law relating to electric current, 16-5674
Ohms, electrical units, 16-5673
Ohthere, Polar explorer, and King Alfred, 8-2977

Oil

* Oil and what it can do, 13-4533-52
eucalyptus, *see* Eucalyptus oil
from cotton-seed, 8-2784
from walnuts, 6-2276
kinds used for lighting, 3-996
linseed, *see* Linseed oil
lubricating, from petroleum, 13-4540
olive, 6-2064; 14-4918
petroleum, *see* Petroleum
sperm, from whale, 6-2216
volatile oils in flowers, 10-3734
Questions about
How does oil make a rough sea calm? 1-188
What is the difference between fat and oil? 14-5224-25
Why does not oil mix with water? 11-3842
Why does oil burn more easily than some other things? 5-1751
Why does oil float on the surface of water? 6-2125

Oil-birds, 9-3374

Oil of cloves, 8-2994

Oil of pimento, 8-2992

Oil painting

and Jan and Hubert Van Eyck, 4-1222
first use in Venice, 4-1460-61
method of early Venetian painters, 3-1104

Oil-palm, *see* Palms

Oilecloth, how made, 5-1551

Oils, *see* Oil

Oilstones, description and care of, 12-4263

Okapi, animal, 4-1445-46

Picture, 4-1445

Okhotsk Sea of. Gulf of the Pacific between Siberia, Kamchatka and the Kurile Islands. It is a centre of the whale fishery.

Oklahoma. South-central state; area, 70,057 square miles; capital and largest city, Oklahoma. Formerly called Indian Territory, but Indians now compose only about one-twentieth of the population. Much oil and zinc are produced. Agriculture and stock-raising are important. Abbreviation, Okla. Nickname, "Sooner State." State flower, mistletoe. Motto, "Labor omnia vincit" (Labor conquers all things). Oklahoma is a Choctaw word for "red people."

described in Southern States, 13-4517-28;

14-4889-4900

formerly Indian Territory, 19-7238

influx of white settlers, 19-7238

made a state, 11-3949

mineral wealth, 9-3210

Pictures

Capitol in Oklahoma City, 14-4896

oil tanks on fire, 13-4548

Oklahoma City in 1889 and to-day, 14-4896

Oklahoma City. Capital of the state of Oklahoma, and also the largest city, situated on the north fork of the Canadian River. The city is the centre of an oil-producing, farming and stock-raising region. It has meat packing plants, flour and grist mills, oil refineries, cottonseed oil mill, poultry and egg packing plants, machine shops, soap and cracker packing factories, printing and publicity houses.

Pictures, 14-4896

Olaf, St., king of Norway, 15-5292

Old-age-pension law passed in England, 7-2300

Old empires and new Europe, * 12-4459-70

"Old Faithful," geyser

Picture, 2-728

Old-field, clover, 14-4974-76

Picture, 14-4975

Old-field-larks, *see* Meadowlarks

Old Glory, name for U. S. flag, 19-7184

Old Hickory, nickname for Andrew Jackson, 3-1045

Old Ironsides, *see* Constitution, ship

Old Ironsides, early locomotive, 5-1617

Old Mortality, by Walter Scott, note on, 11-4071

Old North Church (Christ Church), Boston, Mass., dating from 1723, is the oldest ecclesiastical building in the city. Its tower is famous as the place where the signal appeared on the night of Paul Revere's historic ride.

See Poem, 15-5649

Pictures

interior (graveure), 13-6685

tower, 18-6830

Old Pretender, *see* Stuart, James Francis

Old red sandstone, name for Devonian rocks 4-1176

Old South Church (or Meetinghouse), Boston, Mass., built in 1729. Long used as a Congregational church, it is now a museum for historical relics. At the time of the Revolution many stirring meetings were held there.

Old squaw, duck, 11-3889

"Old Tom Peabody," sparrow, national bird of Canada, 13-4835

Oleomargarine, substitute for butter, 7-2325

Oligocene period, *see* Geology—Oligocene period

Oliphant, Caroline, *see* Wairne, Lady

Olive oil. Oil obtained by pressing ripe olives. It is non-drying and is of a yellowish or yellowish green color. In countries where the olive grows the oil is much used for cooking. Some other uses are for salad-dressing, lubricating, lighting, making toilet soap, etc.

Oliver, Isaac, British painter, 6-2000

Picture, Portrait of Earl of Essex, 6-2003

Olives, grown in California, 6-2064

Olivine, *see* Peridot

Olm, salamander, description, 15-5458

Picture, 15-5457

Olympia. Capital of the state of Washington, on the southernmost inlet of Puget Sound, it is the port for a great area rich in timber, agricultural and mineral resources. The oyster industry is extensive. Much fruit is grown in the district.

Olympiad, measure of time, 12-4401

Olympians, twelve principal gods

list of, 9-3226

Olympic games, ancient Greece

description, 3-1074

influence on sculpture, 12-4216

Question about. What were the ancient

Olympic Games? 12-4401

Pictures, 3-1075

Olympus, Mt., regarded by Greeks as home of gods, 9-3226

Omaha. Largest city of Nebraska, with meat-packing, smelting, railway and engineering industries.

See 17-6046

Oman, Arabia, 18-6676

Omar Khayyám, Persian poet, 15-5463

Omiak, Eskimo canoe, 7-2566

Omnia vincit amor. Latin for "love conquers all."

Omnibus bill. From Latin *omnibus*, for all; a name given to a bill which includes several measures having little, or even nothing, in common, presented in a legislative assembly. It was first used in the United States as a popular name of ridicule for the Compromise of 1850 a bill offered by Henry Clay.

Compromise of 1850, 7-2428

Omsk. West Siberian trading and agricultural centre, on the Irtysh.

Onager, animal, 6-2020

One Hundred Associates, Company of, 2-680, 682

Onega, Lake. Second largest lake of Europe, in northwest Russia. 3,764 square miles in extent, it is connected with Lake Ladoga by the Svir.

Onions, account of, 7-2624

Question about. Why does an onion make our eyes water? 3-1114

Picture, of crop, 7-2622

GENERAL INDEX

Ontario. Most populous Canadian province; area, 407,000 square miles; capital, Toronto. It has immense agricultural resources, producing about half the milk, butter and cheese of the Dominion and more than half the fruit, while forests cover 100,000 square miles. Gold, silver, nickel, iron and copper provide great mineral wealth; and manufactures, at Hamilton especially, are important. Here are Ottawa, the Federal capital, London, Brantford, Windsor and other flourishing cities.

French population of, 8-2949-50
history
as Upper Canada, 1791-1840; 3-944-46
became province of Dominion, 1867, 4-1488
Pictures, 7-2452-53

gathering fruit, 9-3217

Ontario Society of Artists, 10-3700

Ooze in sea, made up of shells, 7-2539

Opah, fish

Picture, (in color) 16-5781

Opal, account of, 19-7230-31

Picture (in color), facing 19-7225

Open square, in drawn-work

how to make, 6-2047

Opera. Drama set to music; one of the principal forms of the art of music. The vocal parts, in choruses, recitatives, arias, duets, trios, etc., have orchestral accompaniment and setting. Scenery, costume, action and dancing are important in the production of an opera.

early Italian opera, 19-6903, 7071
Handel's operas, 19-6914
improvements by Gluck, 19-6916-17, 7073-74
Verdi's operas, 19-6924, 7150
Wagner's operas, 19-6923, 7151
Weber's operas, 19-6920, 7150

Opie, John, British painter, 6-2112

Picture, Portrait of F. Bartolozzi, 6-2109

Opitz, Martin, German writer, 17-6268

Opium, drug, account of, 8-2912

in China, 2-434

Picture, poppy, 8-2913

Opopanax, gum resin, account of, 9-3152

Oporto, Portugal, 14-5188

Pictures, 14-5191

Douro River, 14-5182

Maria Pia bridge over Douro River, 2-412

Opossums

American, 7-2509-10

Australian, 7-2504

Pictures, 7-2503; 13-4698; (gravure) 7-2506,

2508

Optic, Oliver, (W. T. Adams)

books for children, 14-5014

Optical illusions, 8-2746

distorted pictures, how to make, 18-6644

puzzling cards, 7-2647

Opuntia, see Prickly pear

Ora et labora. Latin for "pray and work."

Orache, pot-herb, 14-5158-59

Pictures, 14-5159

halberd-leaved (in color), 14-4981

Orang-utans, 1-208

Pictures, (gravure), 1-209-10

Orange Free State. South African pastoral and agricultural province; area, 50,000 square miles; capital, Bloemfontein. Wool and ostrich feathers are exported.

founding of, 9-3048

joined Union of South Africa, 7-2300; 9-3050

Orange hawkweed, see Devil's paint-brush

Orange River. Largest South African river, rising in the Drakensberg and flowing into the Atlantic. Great falls in its lower course impede navigation, and much of the country it flows through is sandy and desolate. The Vaal is its tributary. 1,300 miles.

Oranges

* account of, 6-2057-58, 2060

scale checked by ladybirds, 18-6730-31

Question about. Why do oranges not grow in Canada? 15-5365

Pictures, 6-2059, 2061

orange grove in California, 6-2056

Spanish orange industry, 14-5051

Oration. A formal discourse delivered in public in a dignified manner; particularly, a speech prepared for some special occasion.

Oratorio. A long musical composition which is more or less dramatic, usually based upon a religious theme, although sometimes it is heroic instead. The orchestral and vocal parts follow

Oratorio (continued)

very nearly the same forms as those of an opera, but scenery, costume and action are omitted in the performance. The name comes from the first compositions of this sort having been given in the oratory of the Church of Santa Maria in Vallicella, Italy.

Orca whale, see Killer whale

Orcagna, Andrea, Italian sculptor, 13-4604

Orchard grass, note and picture, 10-3650

Picture (in color), 10-3522

Orchardson, Sir William Quiller, Scottish artist,

6-2236

Pictures

Napoleon a captive on shipboard (gravure),

6-2212

Scene from Peveril of the Peak, 7-2628

Orchestras

Haydn, father of modern orchestra, 19-7073

musical sounds of, 18-6438

typical modern orchestra, note on, 19-7148

See also Musical instruments

Question about. What does the orchestra conductor do with his stick? 7-2487

Picture, with note about positions, 19-7148

Orchids, 13-4876

* account of, 17-6281

growth in air, 4-1280

of Pacific coast, varieties and description, 19-6928

roots of, 2-614

varieties of, 18-6567

purple fringed orchid, 18-6567

Savannah white orchid, 19-7089

showy orchid, 18-6569

Pictures, 19-7091

rose Pogonia, 18-6567

showy orchid, 18-6569

Pictures (in color)

bee-orchis, 14-4996

greater butterfly orchis, 14-4983

spider orchis, 14-4985

sweet-scented, 14-4995

Orchis Family, see Orchids

Orders, in architecture, see Architecture—orders

Ordinance. A law or regulation that is local, enacted by the government of a municipality, such as a common council or a similar body.

Ordovician rocks, see Geology—Silurian period

Oregon. Middle Pacific state; area, 96,699 square miles; capital, Salem. It has great mining, agricultural and pastoral resources. Largest city and commercial centre, Portland. Abbreviation, Ore. Nickname, "Beaver State" or "Web-foot State." State flower, Oregon grape. Motto, "The Union." The meaning of the name Oregon is uncertain. First settlement, Astoria, 1811.

described in Western States, 18-6425-34;

19-6841-50

early history (arranged chronologically)

discovery of Columbia River, 5-1703

Lewis and Clark Expedition, 5-1703

dispute over ownership, 6-1918

settlement of boundary, 6-1918

made a state, 11-3942

trade and commerce, 19-6846

Pictures

apple orchard, 8-2679

Broadway bridge, Portland, 8-2675

Crater Lake, 7-2281; 18-6436

flag (in color), 19-7191

Hood River Valley, 9-3206

Interstate bridge, 1-26

on Columbia River Highway, 19-6847

Portland street, 19-6847

Oregon, Illinois

Picture, statue of chief Black Hawk, 15-5281

Oregon grape, shrub, 19-6932

Oregon pine, name used for Douglas fir, 12-4249

Picture, 19-6940

Oregon question, 6-1918

O'Reilly, John Boyle, see Poetry Index for poem and note

Orestes and Pilades, friendship of, 8-2963

Organ

Question about. Why do musical sounds come from an organ? 17-6290

Organ bird, 9-3139

Oriental, clipper ship, 11-3919

Oriental architecture, see Architecture, Chinese; Architecture, Indian; Architecture, Japanese; Architecture, Persian

GENERAL INDEX

- Oriental art**, influence on ancient Greece, 2-450
- Oriental fruit-worm**
how introduced into U. S., 18-6734
- Oriental literature**, * 15-5459-64
- Origin of Species**, by Darwin, note on, 2-594
- Orinoco**. Great Venezuelan river, rising in the Sierra Parima and flowing into the Atlantic. Its immense delta stretches for 130 miles from its mouth, but ocean steamers can ascend the main stream 373 miles, to Ciudad Bolivar. 1,600 miles.
- Raleigh's expedition to, 14-4968
- Orioles**, birds
account of, 8-2968, 2970
Baltimore orioles, 13-4829
hangnests, 8-2970
of western North America, 14-5144
orchard, 13-4830
Picture, 8-2969, 2975; 13-4833
hangnests, 8-2969, 2976
Pictures (in color)
Baltimore oriole, 10-3622
Bullock's oriole, 12-4369; facing 14-5133
European golden oriole, 9-3281
- Orion**, constellation
in mythology, 9-3233
legend about, 6-1970
nebula of, 10-3540; 11-4038, 4046
Picture, 11-3923
- Orizaba**, volcano, height of, 7-2313
- Orleans**. Historic French city on the Loire, famous for its relief in 1429 by Joan of Arc. It suffered severely in the Huguenot wars, when its cathedral was destroyed, and is now mainly modern in appearance. It manufactures vinegar and agricultural machinery.
- Orloff diamond**, 19-7232
- Ormuzd**, good god of Zoroastrianism, 9-3092
- Ornament**, see Design
- Ornithogalum**, flower
Picture (gravure), 19-7179
- Ornithologists**, explanation of word, 8-2757
Alexander Wilson and John J. Audubon, 19-7051-52
- Ornithology**, see Birds
- Orographical rain**, 8-2923
- Orpen, Sir William**, British painter, 8-2859
Picture, Mrs. Gibbs (gravure), 8-2861
- Orpheus**. A mythical Greek who by the sound of his lyre could move rocks and trees and charm wild beasts. Heart-broken over the death of his wife, Eurydice, he went to Hades to seek her. Pluto, after hearing his music, allowed Eurydice to follow her husband back to earth, but only on condition that he should not look back before reaching the upper world. The strain was too great; he looked, and Eurydice was lost again. After his death his lyre was placed among the stars by Zeus.
and the Argo, 11-3912
Poem about. Orpheus and His Lute, by Shakespeare, 8-3004
- Orpheus warbler**, bird, 9-3277-78
- Orpines**, plants, 15-5602
Picture (in color), 14-4988
- Orris root**, from fleur-de-lis or iris, 8-2911; 19-7172
- Ørsted, Hans Christian**, see Oersted, Hans
- Orthophonic Victrola**, note and picture, 1-263
- Ortolan**, bird, 8-2976
- Orvieto**, Italy
Picture, cathedral (gravure), 17-6172
- Oryx**, animal, 4-1441
Picture, 4-1440
- Osaka**. Second largest Japanese city, with over 700 factories. It does an immense trade in cotton, refined sugar, iron and metal goods, leather, glass and confectionery.
description, 2-572
- Oscilloscope**. A machine for throwing upon a rapidly moving machine a series of flashes of one-millionth of a second's duration, so that the motion appears slow and can be carefully examined.
- O'Shaughnessy, Arthur**, English poet, 12-4234
See also Poetry Index for poems and notes
- Osiris**, Egyptian god, 1-290
legend of, 3-810, 812
- Osler, Sir Edmund**, gave Kane's paintings to Toronto, 10-3700
- Oslo (Christiania)**. Capital of Norway, on Christiania Fiord. A great commercial centre and timber port. It contains the National University and a cathedral, and has considerable manufactures.
population, 15-5302
Picture, 15-5303
- Osmanli**. The name of the Turki race that followed the fortunes of the Othman dynasty, conquered the surrounding Turkish and Tartar tribes, and settled in Asia Minor and the Balkan peninsula in the 13th, 14th and 15th centuries. They are industrially and commercially an indolent people, though they are brave soldiers.
- Osmosis**. In physics and chemistry, the process of diffusion between two fluids that are capable of mixing when separated by a partition which they can penetrate (an animal membrane, for instance). The process tends to bring about an equal condition on the two sides of the partition.
- Ospreys**, birds
account of, 10-3753-54
American osprey, 13-4762
nest, 13-4765
Pictures, 10-3755
Picture (in color), 9-3282
- Ossa, Mt.** Peak in Thessaly now known as Mt. Kisosvo. 6,400 feet.
- Ossian**, poems of
forgery by Macpherson, 6-2027
- Ossoli, Marchioness**, see Fuller, Margaret
- Ostenso, Martha**, Canadian novelist, 15-5370
- Osteopathy**. A system of treating disease by the manipulation of different parts of the body. It is based on the theory that diseases are due to some derangement of the mechanism of the skeleton, nerves, blood-vessels or other tissues.
- Ostracism**. From the Greek word for the tile or shell used in voting. A measure practiced in ancient Athens whereby a citizen who seemed to be becoming dangerous to the state in any way might be temporarily banished by popular vote. It did not inflict any stigma on a man, nor interfere with his property or civil rights in any way, merely banished him for ten years.
See Aristides, 3-1077
- Ostriches**
* account of, 13-1655-56
feathers, 13-4656
exported by South Africa, 9-3052
Question about. Does an ostrich hide its head in the sand? 17-6289
Pictures, 8-2756
Somali ostrich, 13-1654
- O'Sullivan, Seumas**, see Poetry Index for poem and note
- Otago**, New Zealand, 7-2576
- Othello**, play by Shakespeare
criticism, 3-984-85
story of, 8-2691
Picture, 3-840
- Othman I.** Turkish sultan, founder of the Ottoman Empire; lived from 1259 to 1326.
- Otho, Marcus Salvius**, Roman emperor, 5-1863
- Otis, Elisha G.**, invented first elevator, 19-7212
- Otis, James** (1725-83). Massachusetts patriot, prominent in opposition to British rule.
- Ottawa**. Capital of the Dominion of Canada, on the Ottawa River, Ontario. A well-built, modern city, it contains two cathedrals, a university, and the splendid Dominion parliament house; there are machinery, paper, flour, and especially lumber industries.
first Dominion Parliament met in, 1867-68, 4-1489
Pictures
Parliament Building, 5-1835, 1838-39
- Ottawa River**. Canadian river rising in Ontario and emptying into St. Lawrence River. 685 miles.
- Otter**, animal, 3-873
fur-farms for, 13-4696
Pictures, 3-869, 870; 13-4697
- Otter hounds**, hunting dogs, 2-718
- Otter-shrew**, 1-320
- Otto I** (912-73). Emperor of the Holy Roman Empire from 962 until his death. He had succeeded his father as king of Germany in 936. In the year 955 he had a victory over the Magyars.
- Otto, Nicholas**, invented internal-combustion engines, 19-7015
- Ottoman Turks**, see Turks: Turkey
- Ouananiche**, salmon, 15-5636

GENERAL INDEX

Oudenarde, Belgium
Picture, Town Hall, 15-5499
Oulton, Robert, and fox-raising, 13-4693
Ounce, a kind of leopard, 2-501
Our domestic poultry, * 12-4491-94
Our feathered friends, * 8-2757-62
Our unseen friends and foes, * 2-557-59
Our wonderful canals, * 10-3425-27
Ourselves and the nation, * 19-6875-78
Ousels, Water, birds, 9-3139; 14-5147
Pictures
 feeding young, 9-3137
 ring ouzel (in color), 9-3130
Outline, in drawing or painting, a convention, 8-2710
Outposts of Canada, * 7-2557-66
Outposts of Empire, * 9-3181-91
Oven
 old-fashioned, use in bread-making, 1-372-73
Picture, outdoor oven, Quebec, 8-2955
Ovenbirds, 9-3288; 13-4840
Overtones in sounds
 * account of, 19-6851-55
 explanation, and effect in music, 18-6700
 in voice, 10-3559-60
 notes, meaning of term, 19-6854
Ovid, Roman poet, 16-5912
Picture, portrait, 16-5907
Ovule, part of flower, 2-506
 seeds, when ripe, 3-1083
Owen, Sir Richard, English scientist
 life and work, 2-592-93
 and bones of giant sloth, 7-2396
Pictures
 portrait, 2-589
 with skeleton of bird, 2-593
Owl-parrot, bird
 account of, 10-3618
Picture, 10-3613
Owls
 * account of, 10-3618-20
 burrowing, 14-5021
 of North America, 13-4762-63; 14-5021, 5148
 value to farmers, 10-3619-20
Poems about
 The Horned Owl, by Barry Cornwall, 15-5523
 The Owl, by Lord Tennyson, 6-2153
 The Owl-Critic, by J. T. Field, 7-2640
Question about. Why does an owl come out by night? 3-981
Pictures, 10-3617
 barn owl (in color), 8-2900
 brown or tawny owl (in color), 9-3129
 burrowing owls, 14-5148
 European little owl (in color), 9-3283
 long-eared owl (in color), 9-3132
 nest, 13-4765
 short-eared owl (in color), 9-3130
 young barn owl, 8-2761
Ox-peckers, birds, 8-2968
Ox-tongue, flower
Picture, (in color), 14-4995
Oxalic acid (COOH). An acid which exists in various plants, particularly wood sorrel, or oxalis. It forms white crystals, will dissolve in water and alcohol, has an excessively acid taste and is a strong poison. To produce it in large amounts the action of fused caustic soda or potash on sawdust is employed. Some of its uses are: removing inkstains, printing calico, bleaching straw and flax, dyeing, etc.
Oxen, uses of, 4-1260-61
Pictures, 4-1261; 10-3-07
 use in primitive irrigation, 7-2547
Oxenham, John. *See* Poetry Index for poems and notes
Oxford. Cathedral city and capital of Oxfordshire, on the Thames, here called the Isis. Famous for its university, dating from about 1100, it is one of the finest English cities; there are 21 colleges and many beautiful buildings.
Picture, River Isis, 7-2540
Oxford University
 Rhodes scholarships, 1-74
Oxidation. The act or process of combining with oxygen. *See* Oxids.
Oxids, definition, 4-1256
Oxley, Lt., Australian explorer, 3-863
Oxlip, flower. *Picture* (in color), 14-4991
Oxygen
 absorption by rocks, 9-3102
 and burning of oils, 5-1751
 and protoplasm, 2-664

Oxygen (*continued*)
 boiling-point of, 8-3014
 fishes' need of, 15-5540-41
 given off by plants, 1-312
 importance of, 4-1330
 in blood, 3-937
 carried by hemoglobin, 3-805
 in living matter, 4-1325
 use in body, 6-2186
Question about. Where does the oxygen in the sun come from? 14-5225
Oyster-catchers, birds, 11-4012
Pictures, 11-4011; (in color), 9-3132
Oysters
 account of, 19-6888
 * cultivating and gathering, 11-4053, 4063
 eggs, number of, 15-5542
 pearl oysters, 9-3300; 19-6885, 6888, 7229
 preparing for market, note on, 11-4062-63
Pictures, 19-6882
 planting, collecting and packing, 11-4062-63
 shells, 19-6886
Ozone
Question about. What is the substance known as ozone? 6-2252



Pachacuti, Inca of Peru, 19-6860
Pacific Highway
Picture, Chuckanuck Drive, Washington, 7-2307
Pacific Ocean. Largest of the oceans, having an area greater than all the land in the world. One and three-quarter times as big as the Atlantic, it contains the greatest known ocean depths. Few large rivers flow into it, but it is remarkable for its immense number of islands, among them New Zealand, the Philippines, the East Indies, Japan, the Aleutian Islands, and the Melanesian, Micronesian and Polynesian groups. Its splendid harbors include Vancouver, San Francisco, Valparaiso, Auckland, Sydney, Singapore, Shanghai and Yokohama.
 depth of, 7-2539
See also South Seas
Packard, Frank L., Canadian author, 15-5370
Packets, ships
Picture, Dreadnaught, 11-3917
Packing industry, *see* Meat industry and trade
Paderewski, Ignace Jan (1860-). A Polish pianist and diplomat. After the outbreak of the World War in 1914 he worked for the cause of Polish independence, as head of the National Polish Committee, helping to formulate the Peace Treaty. In 1919 he became premier and minister for foreign affairs for six months, and in this capacity signed the Treaty of Versailles, as musician and statesman, 13-4688
Padua. City of Venetia, Italy, with a famous university, the most important in Europe during the later Middle Ages. Still surrounded by walls, Padua has nearly fifty churches, the finest of which are the Cathedral and St. Antonio; the Chapel of the Annunciation has frescoes by Giotto.
 painters, 3-1103
Pictures, 13-4573
 Church of San Antonio (grave), 17-6170
Pæstum, Italy, 13-4566
Pictures
 Greek Basilica and Temple of Poseidon, (grave), 15-5350
 reconstruction of Poseidon's Temple, 15-5340
Páez, José Antonio, president of Venezuela, 19-6975
Paganellus, fish
Picture (in color), 16-5781
Page, Charles G., and telephone, 17-6184, 6241-42
Page, Thomas Nelson, American author, 13-4820
Paget, Sidney, British painter
Picture, Lancelot and Elaine (grave), 19-6946
Pago-Pago, harbor in Samoa, 10-3592
Pagodas, Chinese, as architecture, 15-5472
Pictures (grave), 2-425; 9-3094-95; 15-5479
Pain
 sense of, in skin, 4-1420

GENERAL INDEX

Pain (continued)

Questions about

Do animals feel as much pain as we do?

6-2251

What is pain and why does it hurt? 11-3840

Why does it not hurt when we cut our hair?

8-2873

Paine, Thomas

writings about American Revolution, 12-4450

Paint. A preparation of a coloring substance made by mixing with a suitable vehicle, such as oil, water or varnish. Sometimes the term is used for the pigment alone. Paints form surface-coatings which preserve as well as color; sometimes they contain driers, as japan, and thinners, as turpentine. When oil is used with the pigment the paint is called oil paint. Some pigments are mineral.

how to clean, 15-5335

how to remove stains of, 2-618

luminous, 2-587

Question about. What is the secret of luminous paint? 8-3016

Painted cups, flowers, 18-6666

Painted Desert, Arizona, 9-3025-32

Picture, 9-3027

Painting

climate, influence of, 4-1222, 1496; 6-2229

color

ancient conventions in, 1-291-92, 297

and light, 7-2480-82

Byzantine use of gold, 2-692

characteristic of Hals, 5-1590

characteristic of Reynolds and Gainsborough,

6-2110-11

characteristic of Rubens, 5-1586

characteristic of Zuloaga and Sorolla,

8-2854

impressionistic treatment of, 7-2476-82

in fresco, 2-697

in tempera and oil painting, 3-1104; 4-1460

on Greek vases, 2-450-51

use with oil by the Van Eycks, 4-1222

use with oil introduced into Italy, 3-1104;

4-1461

Velasquez's secret of, 4-1498

historical

by Rubens, 5-1586

in France, 6-2078, 2081-82; 8-2858

in Poland, 8-2852

in Russia, 8-2851-52

in the ancient world, 1-297

in U. S., 9-3326, 3328

West's influence on, 9-3326

history

* Artists of the old empires, 1-289-97

* Early Christian painting, 2-575-82

* European artists of late years, 8-2851-60

* Summary of European painting, 9-3069-72

See also following headings grouped by national adjectives: as, Painting, Italian

impressionism and post-impressionism,

7-2480-82; 8-2709-14

landscape

early Flemish, 4-1227

in Canada, 10-3699-3709

in England, 6-2229-34

in France, 5-1874, 1876; 7-2369-76, 2476, 2482;

8-2855-56

in Holland, 5-1590, 1592

in U. S., 9-3332-36; 10-2447-50, 3455-56

in Venice, 3-1106

light

artists' experiments, 8-2709

in Claude Lorrain's landscapes, 5-1876

in Correggio's pictures, 3-1108

in Giorgione's work, 3-1106

in modern French painting, 7-2476-82; 8-2709

in Sorolla's pictures, 8-2854

in the studio and out of doors, 7-2476

in Turner's landscapes, 6-2234

problems of rendering, 5-1711

Rembrandt's secret of, 5-1709, 1711

the modern quest, 9-3071; 10-3455-56

Velasquez's treatment of, 4-1498

mural

of the cave-men, 1-194

in Aegean and classical times, 2-448-49, 451-53

in ancient lands, 1-291-97; 3-816-18

in Canada, 10-3703

in early Christian days, 2-476-82

in Italy, 2-698-99; 3-824, 828, 830-31, 959-60,

1107; 4-1462, 1464; 5-1736-37

Painting—mural (continued)

in the Netherlands, 4-1222

in U. S., 9-3336; 10-3451-53

modern British, 8-2860

modern French, 7-2482

of portraits

by British artists, 6-2109-20; 8-2859

by Dürer and Holbein, 4-1345, 1348

by Jan Van Eyck, 4-1222, 1225

by Hals and Rembrandt, 5-1712

by Leonardo da Vinci, 3-828

by Rembrandt, 5-1710

by Rubens and Van Dyck, 5-1586

by Velasquez, 4-1500

good and poor compared, 3-1108

in Canada, 10-3702-04

in France, 4-1227; 5-1881-82; 6-2078, 2080;

8-2712, 2856-58

in U. S., 9-3325-30; 10-3450-52

influence of photography, 8-2859

of children, by Bronzino, 3-958

plein-air painting, 7-2476-82

water-color painters, British, 6-2234

Painting, Aegean, and classical painting, 2-447-51

Painting, American

* Painting in the U. S. in the earlier years,

9-3325-36

* Artists of the later years, 10-3447-56

influence of French painting, 9-3333

Pictures, 2-390; 3-969, 971; 4-1167, 1169; 6-1915.

1917; 7-2426, 2441, 2443; 13-4883;

(graveure), 10-3457-64

See also starred articles above

Painting, British

* Britain's art begins, 6-1999-2005

* painters of 18th century, 7-2327-36

* 18th century and early 19th, 6-2109-20

* in 19th-20th centuries, 8-2858-60

* Constable, Turner and the Pre-Raphaelites,

6-2229-36

portrait-painters, 16th and 17th centuries,

6-2000-05

recent artists, 8-2858-60

summary of, 9-3071-72

Van Dyck's influence, 5-1586

Pictures (in color), 7-2337-40

See also all articles above

Painting, Canadian

* Painters of Canada, 10-3699-3709

Pictures, 10-3699, 3701, 3703-04, 3709-10;

(graveure), 10-3705-08

Painting, Dutch

* history and characteristics, 5-1588-94

recent artists, 8-2853-54

summary of, 9-3070

See also Rembrandt

Pictures, *see* all articles above

Painting, Flemish, 15-5502

* Artists of Flanders, 4-1221-28

* The Dutch and the Flemings, 5-1585-88

compared with Italian painting, 4-1222

influence on French art, 5-1873-74

summary of, 9-3070

Pictures, *see* all articles above

Painting, French

* Rise of French art, 17th and 18th centuries,

5-1873-82

* French art after the Revolution, 6-2077-82

* Nature artists of France, 7-2369-72

* naturalists, impressionists and others,

19th century, 7-2475-82

* Modern movement in French art, 8-2709-14

recent artists, 8-2855-58

early history, 4-1227

influence on American painting, 9-3333

influenced by Flemish and Italian art,

5-1873-74

summary of, 9-3070-71

Pictures, *see* starred articles above

Painting, German

* history, early times through Holbein,

4-1343-48

late development, reasons, 4-1343

recent artists, 8-2852-53

summary of, 9-3070

Pictures, *see* all articles above

Painting, Italian

* Early Florentine school, 2-697-99

* Later Renaissance masters, 3-823-31, 957-60

* Siennese school, 2-691-92, 697

* Venetian, 4-1460-64

* Venetian and other schools, 3-1103-08

recent artists, 8-2854-55

GENERAL INDEX

Painting, Italian (continued)

compared with Flemish painting, 4-1222
influence on Dutch and Flemish painting, 5-1585

influence on French art, 5-1873-74
influence on Velasquez, 4-1498
summary of, 9-3069

Venetian influence on Dürer, 4-1344

Pictures (graveure), 2-693-96; 3-1109-12

Renaissance period, 3-961-64

See also all articles above

Painting, Mechanical

clay fruits, 6-2043
stencils, directions for using, with picture, 1-336

wood, 11-4088

Painting, Polish, 8-2852

Painting, Russian, 8-2851-52

Painting, Scandinavian, 8-2852

Painting, Spanish

* history, to Goya, 4-1495-1500

recent artists, 8-2854

summary of, 9-3070

Pictures, see articles above

Painting, Swiss, 8-2852

Pair of Magic Slippers (story), 2-402-03

Paisley. Town and port in Renfrewshire, Scotland, on the White Cart, 7 miles from Glasgow. Famous especially for its shawls and for its abbey, it has thread, dyeing, bleaching, chemical and shipbuilding industries.

Pajou, Augustin, French sculptor, 13-4703

Pakenham, Sir Edward, in battle of New

Orleans, 5-1706-07

Palaces

in Italy, 4-1456, 1458; 17-6298-99, 6300, 6309, 6311

Moorish, in Spain, 9-3356

See also Alhambra; Louvre; Versailles,

Palace of

Pictures, Italian, 17-6296-97; (graveure), 4-1465, 1467-68; 5-1744, 1746; 17-6302-08

Palaeocene rocks, 5-1783

Palaeontology, study of fossils

Cuvier's work for, 2-590

See also Geology; Animals—history

Palaeozoic age, geological era, 2-634

See also Geology—historical periods

Palafox, José, in siege of Saragossa, 14-5119

Palais Bourbon. A building in Paris in which the Chamber of Deputies, or Lower House, meets. Hence an alternative name for the Chamber of Deputies.

Palais Royal, Paris

destroyed under Commune, 10-3576

Palermo. Capital and largest seaport of Sicily, with a large export trade. The ancient Panormus, the stronghold of the Carthaginians in Sicily, it was successively conquered by Pyrrhus, the Romans, the Vandals, Belisarius, the Saracens, the Pisans and the Normans, and it still has many historic buildings. There are nearly 300 churches and chapels, a university and a 12th-century cathedral.

churches, 17-6164

Pictures

campanile, 13-4573

cathedral (graveure), 16-5723

Pales, goddess of Roman shepherds, 9-3235

Palestine

* account of, since World War, 18-6676, 6678

agriculture, modern, notes and pictures, 19-7163

pilgrimages to, 7-2583-84

Zionist movement, 19-7160, 7162

See also Jews

Pictures, 18-6677; 19-7159, 7163

Palestrina, Giovanni Pierluigi da, Italian musical composer, 19-6903, 6913, 7071

Picture, portrait, 19-6912

Palfreys, horses used in Middle Ages, 6-2016

Palgrave, Francis Turner, see Poetry Index for poem and note

Pallia, festival of goddess Pales, 9-3235

Palimpsests, manuscripts, 2-582

Palisades of the Hudson

time of formation, 4-1401

Palladio, Andrea, Italian architect,

4-1459; 17-6311

Picture, portrait, 4-1455

Palladium (Pd). A rare metallic element belonging to the platinum group. It is sometimes found native, and also with platinum or gold.

Palladium (continued)

Discovered in 1803 by Wollaston, it was called after the recently discovered asteroid Pallas. It is silver-white, malleable and permanent in the air; used for plating silver goods, in dentistry and for making scales and division marks on scientific instruments. Palladium has been found to be remarkable for its capacity for absorbing hydrogen.

Pallas Athene, see Athena

Palma, Jacopo or Giacomo (called **Palma Vecchio**), Italian painter, 3-1106

Pictures

Meeting of Jacob and Rachel (graveure)

3-1111

Three Sisters, 3-1105

Palma. Capital of the Spanish Balearic Islands, in Majorca, with textile trade and fruit exporting.

Palmer, Frederick S., Canadian painter, 10-3704

Palmer, Ray, see Poetry Index for poem and note

Palmetto State, name for South Carolina,

13-4638

Palmetto trees, 13-4638-39

Picture, 13-4639

Palmieri Villa, Italy. *Picture*, 17-6153

Palms, trees

* account of, 9-3154, 3156

coconut-palm

description of, for game, 16-5771

fruit of, 6-2280

Pictures, 6-2279

date-palm

description and uses, 6-2157-58; 5-1624

use by Arabs, 18-6740

Pictures, 6-2160; (in color), 8-3000

fan-palm, 13-4638-39

Picture, 13-4639

ivory-palm, 9-3156

oil-palm, 9-3156

uses, West Africa, 18-6812

Picture, grove in West Africa, 9-3155

rattan-palm, description, 9-3154, 3156

Paludan-Müller, Frederik, Danish poet, 19-7011

Pamir Plateau, in Asia, 18-6583

Pampas, definition, 6-2171

Pan, god of shepherds, 9-3237

and reed flute and Syrinx, 9-3236

Poem about. A Musical Instrument, by Mrs. Browning, 5-1779

Pan-American Union, Washington, D. C.

building, note and picture, 5-1544

Pan-Slavism. A movement to bring about unity between all Slavonic races. It was an important factor in Near Eastern affairs during the 19th century owing to Russian support.

Panama. Capital of the Republic of Panama, at the southern end of the Canal. A cathedral and university city, it was founded in 1671 by the pirate Morgan.

not in Canal Zone, 10-3594

Pictures, 1-369-70

Panama, Republic of, Central America, 19-7142

part of Colombia until 1903, 19-6976

separated from Colombia, 1-362

leased Canal Zone to U. S., 1-362

Panama Canal

* Digging the Panama Canal, 1-360-67

bird's-eye view, and note, 1-360

different routes suggested for, 1-362

French company, under De Lesseps, 1-361

Question about. How much stuff was dug out to make the Panama Canal? 4-1451

Pictures, 1-360-70; 13-4793

Panama Canal Zone, 10-3594

purchase by U. S. from Panama, 1-362

Pictures, 10-3595

Pancreas, gland; function of, 6-2085

and diabetes, 9-3224

Panda, Zulu king, 9-3050

Panda, animal, 3-872

Pictures, 3-869, 870

Pandanus, tropical plant

Pictures, 9-3260

fruit (in color), 8-3000

Pandora, story of, 9-3233; 14-5259

Pangolins, animals, 17-2400

Pictures, 7-2395

Pansies, flowers, 19-7171

wild, name for heartsease, 17-6126

Pictures (graveure), 19-7179

yellow pansy (in color), 15-5610

Pansy Series of books, 14-5015

GENERAL INDEX

- Panthéon**, Paris, 13-6498
wall decoration, 7-2482; 8-2858
Picture (gravure), 11-3827
- Pantheon**, Rome, 15-5318
Pictures, 4-1197; 8-3010; (gravure) 4-1206
- Panther**, animal, 2-501
drawing of, how to make, 6-2165
Picture (gravure), 2-500
- Pantograph**. An instrument for copying drawings on the same scale either enlarged or reduced in size.
- Pantomime**. A dramatic performance chiefly in dumb-show, in which it originated in Rome. In France the term was later applied to allegorical performances with mythological characters. In England subjects from popular tales with burlesque, music and dancing were employed, and became a feature of the Christmas season.
in Rome, 16-5909
- Papal Line of Demarcation**, 1-252; 19-7040
- Paper**
cut-paper compositions, how to make, 13-4845-46
directions for making paper, 3-1152
folded, things made with, 16-5767-68
* invention, history, and use, 3-1053-56; 10-3550
made from wood, 12-4475
manufacture, 3-1057-59; 7-2445-52
oldest pieces known, 3-1054
papyrus scrolls in Egypt, 11-2977
reason it burns easily, 10-3477
See also list of main articles, 20-7635-36
Questions about
How are the marks put into writing paper? 5-1753
What is the paper we use made of? 8-3016
Why does heat make paper curl up? 9-3356
Pictures, manufacture, 3-1057, 1059; 7-2445, 2447-52
- Paper flowers**, how to make, 12-4500-01
- Paper-folding**
star, how to cut, 19-6964
- Paper-knife**, directions for making, 1-131
- Paper lanterns and shades**, directions for making, 18-6777
- Paper nautilus**, *see* Argonaut
- Paper weights**, lead, directions for casting, 3-1023
- Papier-mâché**. From French *papier*, paper, and *mâché*, chewed. A material made of paper reduced to pulp of a doughy consistency, with such substances as size, glue, resin or clay added. It can be shaped or molded into a variety of articles, and dries into a hard, strong substance. Its manufacture has become an important industry.
- Papin**, Denis, French inventor, 17-6397-98
- Papineau**, Louis Joseph, Canadian leader, 3-946
Picture, portrait, 3-946
- Papua**, or **New Guinea**. Territory in East Indies, under Australian administration; area, 90,540 square miles; capital, Port Moresby. Peopled by negroid tribes, it is mountainous and thickly forested. Copra is the chief export, though there is some trade in tobacco, gold, rubber, sisal and copper; the fauna and flora are brilliant.
population and nation ruling, 9-3186
- Papuans**, natives of Melanesia, characteristics, 9-3202
- Papyri**, old Egyptian books, 3-814
- Papyrus**, from plants, 5-1627
how prepared for paper, 3-1156
used for books, 10-3550
used for paper, 3-1053
Question about. What is papyrus? 11-3977
Picture, with Egyptian writing, 10-3547
- Papyrus**, plant. *Picture*, 10-3547
- Pará**. Cathedral city and port of Brazil, near the mouth of the Amazon. Famous for its great export of rubber, it trades also in nuts, hides and cacao.
- Para rubber**, *see* Rubber
- Parabola**. A curve which is commonly considered as being formed by the intersection of a cone with a plane that is parallel with the side of the cone.
- Paracelsus**, Philippus Aureolus
works on medicine, 8-2735
- Parachute**. Derived from words meaning "prevent fall." A contrivance with which to make a descent from a great height, especially from a balloon or airship of any kind. In form it resembles an umbrella. Its invention is accredited to Sebastian Lenormand.
toy parachute, how to make, 4-1396
- Paradise Lost**, by Milton, account of, 4-1240-42
- Paradise of Dainty Devices**, a collection, 3-1118
- Paradise Regained**, by Milton, 4-1242
- Paraffin**. From Latin *parum*, little, and *affinis*, akin. A substance found in deposits in the earth and as a constituent part of petroleum, or produced in the distillation of wood, coal, etc. In a pure state it is waxy, white or colorless, and has no taste or smell. It shows no chemical reaction to acids or alkalis. It is used in waterproofing materials, preserving food, and manufacturing candles, matches, etc. *See also* 13-4540.
- Paraguay**. Inland republic of South America; area, 61,000 square miles; capital, Asuncion. Paraguay's right to 40,000 square miles of additional territory is disputed by Bolivia. Most of it consists of dense jungles or grassy uplands, the chief exports being hides, timber, tobacco, meat, quebracho and Paraguay tea.
history, 19-6982
Jesuit mission to Indians, before 1768, 19-6862
- Paraguay tea**, 7-2536
- Parallax**. The apparent displacement of an object, or the difference of direction which it appears to hold, as it is seen from two different points. To get an effect of parallax, alternately close one eye, then the other, looking at a single object. In astronomy, the difference in direction of a star or other heavenly body as seen from a point on the earth's surface and as seen from some other designated point, for instance, the sun or the centre of the earth.
- Parallels of latitude**, 1-19
- Paralysis tick**, 16-6019
- Paramaribo**. Capital and port of Dutch Guiana, exporting coffee, cocoa and sugar.
- Paraná**. Second largest South American river, flowing from the Brazilian highlands into the La Plata. It passes Corrientes, La Paz, Santa Fé and Rosario, and the Paraguay is its tributary, 2,450 miles.
- Parasites**
insect, harmfulness of, 18-6732-33
mites, ticks, chiggers, 16-6018-20
plant, 1-333
See also Mistletoe
- Parathyroids**, glands, 9-3222
- Parchment**, how made, 3-1156
introduction of, 10-3550
- Paré**, Ambroise, French surgeon, 8-2725
Picture, portrait, 8-2721
- Parents**
advice to, on educational games, 10-3636-37
parental instinct, importance, 12-4442-43
Question about. Why are we like our parents? 15-5613-14
- Paris**, in Greek mythology, 6-1983; 9-3227
Picture, statue of, 12-4459
- Paris**, France
Commune, rule of, 10-3573, 3576
description of, 11-3820
founding of, 10-3430
siege of, 10-3573
Pictures, 11-3813
The Bourse, 16-5933
Church of the Sorbonne, 18-6711
Pictures (in gravure)
Notre Dame cathedral, 1-72; 17-6168
Sainte Chapelle, 17-6170
* various scenes, 11-3825-28
- Paris**, Treaty of, 1763
Canada made a British colony, 2-683
occasions in America, 3-784
- Paris green**, or **emerald green**. Now used as an insecticide; formerly used as a pigment, until it was found too poisonous. Made of the union of copper acetate and copper arsenite.
- Park**, Mungo, African explorer, 2-166-67
Picture, portrait, 2-167
- Parker**, Sir Horatio Gilbert, Canadian novelist, 15-5369
Picture, portrait, 15-5369
- Parkman**, Francis, American historian, 14-5110
life and writings, 13-4821-22
Picture, portrait, 13-4814
- Parks** of N. Y. City, service to children, 15-5623-24
- Parley**, Peter, name used by S. G. Goodrich, 14-5014

GENERAL INDEX

- Parliament**, meaning of word, 5-1572
- Parliament, British**, *see* England—Parliament
- Parliament, Houses of**, London
building of, 12-4360-61
Picture, 12-4359
- Parliament, Irish**, *see* Ireland—Parliament
- Parliamentary law**. The rules which govern the procedure of deliberative assemblies. It is a distinct branch of the law and covers the duties of officers and the order for all motions.
- Parma**. Ancient city of northern Italy, containing an 11th-century cathedral, 60 churches, a university, and the ducal palace of the Farnese, with many fine examples of Correggio's works.
- Parnassus**, in mythology, 9-3237
- Parnell, Charles Stewart**, Irish leader, 8-2936
- Parody**. Among the Greeks a comic imitation of a serious poem. Later applied to comic imitation of any variety of prose. Parody is found in the literature of very early peoples, but the Greeks first gave it form, and Aristophanes, the great comic poet, parodied whole passages of Euripides. Don Quixote is a parody of medieval romance.
earliest Greek, 16-5748-49
- Parole**. French for "word." In international law it is the pledge of honor of a prisoner of war by which he promises, if granted freedom, to observe certain conditions imposed by his captors. In the American and British armies it can be given only through a commissioned officer. Release on parole is still somewhat rarely practiced. In penal law parole is a pledge of good behavior given by a convicted person as a condition of exemption or release.
- Parrakeets, or Paroquets**, birds, 10-3616
Picture, 10-3615
Pictures (in color)
horned, 10-3621
Pennant's parrakeet, 10-3621
red-shouldered, 10-3624
splendid grass parrakeet, 10-3622
- Parrot fish**
Pictures (in color), 16-5785-86, 5788
- Parrots**, 10-3613-18
Poem about. The Parrot, by Thomas Campbell, 4-1384
Pictures, 10-3615
- Parry, William Edward**, arctic explorer, 8-2986
Pictures, portrait, 8-2977
expeditions, 8-2987
- Parsec**, astronomical measure, 11-3784
- Parsees**, followers of Zoroaster, 3-918
- Parsley**, 7-2618
fool's parsley, 14-4976-77
Pictures, 7-2621
Pictures (in color)
corn parsley, 15-5397
hedge parsley, 13-4880
small bur, 15-5398
- Parsley Family**, in botany, 13-4874
vegetables in, 7-2624
- Parsnips**, 7-2624
- Parsnips, Water**
Picture (in color), 16-5884
- Parson bird**, 9-3138
Picture, 9-3135
- Parsons, Sir Charles A.**, and steam turbines, 17-6404
Picture, portrait, 17-6397
- Parthenium**, plant, produces rubber, 8-2790
- Parthenon**, Athens
architect, Ictinus, 12-4222
description of, 8-3009; 15-5342-43
sculptures, description of, 12-4221-22
See also Athens
Pictures
as it stands to-day (gravure), 15-5349
position on Acropolis, 2-705
reconstruction of, 3-1079
sculptured figures of, 3-1069; 11-3808; 12-4215, 4217
- Parthian shot**. Remark uttered at the moment of leaving, so as to give no chance of effective reply. The term is derived from the practice of the Parthian horsemen in shooting arrows at their pursuers when retreating.
- Parthians**, ruled Persia, 3-918
- Participle**. In grammar, a verbal adjective. It is formed from a verb and modifies a noun or pronoun. In English there are two participles: the present, for example, *giving*, and the past, for example, *given*.
- Parties**
fancy-dress tea-party, 17-6144
games for, *see* Games—for parties
- Partnership**. An association of two or more members carrying on a legal business for profit. Convicts, alien enemies and corporations cannot enter partnerships. General, or ordinary, partnership conducts business in accordance with general usages; particular partnership is confined to a single enterprise. In a limited partnership the liability of some or all of the partners is only the amount of capital they invest.
- Partridge berry**, vine, 18-6570-71
Picture, 18-6571
- Partridges**, birds, 12-4364-65
mountain partridge, name for California quail, 14-5135
name given to grouse, 13-4760
Pictures
European partridge (in color), 8-2898
French partridge (in color), 8-2900
nest and eggs, 8-2757
- Parts of speech**. Eight in number: noun, adjective, pronoun, verb, adverb, preposition, conjunction, interjection. A noun is the name of a person, place or thing; an adjective qualifies a noun; a pronoun is used instead of a noun; a verb expresses action or being; an adverb modifies a verb, adjective or other adverb; a preposition shows the relation between one noun and another; a conjunction connects words and clauses; an interjection expresses an emotion of the mind. Some grammarians add a part of speech called the article, as a, an, and the.
- Pascal, Blaise**, French author and scientist
discovered law of fluid pressure, 15-5289
experiment on air pressure, 15-5286
writings of, 18-6713-14
Picture, portrait, 18-6559
- Pasha, Emin**, *see* Emin Pasha
- Pasque flower**, 18-6658
Picture (in color), 14-4996
- Passover**. A double festival combining the feast of unleavened bread and a festival in which the chief rite was the sacrifice of a lamb within the family circle and the sprinkling of its blood on the door-posts. The first was probably the old Canaanitish harvest festival, when the people busy with field labors were accustomed to eat unleavened bread; the second probably a spring full-moon festival also observed by the Canaanites. The Hebrews adopted both festivals and made the sprinkling of the blood symbolic of the protection received when pestilence struck Egyptian households, and the unleavened bread symbolic of the haste with which their departure from Egypt was attended.
- Passport**. A document issued by a government for the identification and protection of its citizens traveling abroad. First, it is a certificate of the citizenship of the bearer and, second, a formal permit authorizing him to leave the state. This, presented to the foreign government, obtains permission to pass through by the act of an officer in putting a visé upon it.
- Pasteur, Louis**, French scientist
* life and work, 15-5481-82
and microbes, 2-559
checked disease of silk-moths, 18-6529
Pictures, portraits, 15-5483, 5615
- Patagonia**. Territory in the extreme south of South America, in Argentina and Chile. It consists mainly of high pastoral plateaus, with large areas of stony desert, there being little or no rainfall east of the Andes during eight months of the year.
- Patagonians**. A general name for the tall people who inhabit South America south of the Rio Negro. They are broad-shouldered, very muscular, and carry themselves in a stately manner. Their faces are round or oval, their noses rather short, and their eyes small. They are a peaceful people who are fast dying out.
- Patching**, lesson in, 11-3857
- Patent**. A grant by the state to an individual of any property, franchise, privilege or title; particularly such a grant to an inventor or discoverer of a useful art or device. Patents are obtained by making application to the Commissioner of Patents in accordance with the form prescribed by law. The application is referred to an examiner, and if no objection is found, the patent is issued. Patents are property and may

GENERAL INDEX

Patent (continued)

be sold. An owner may grant license to use upon payment of royalties, or may grant the right to manufacture and sell for a certain time. All patented articles must be marked "patented," and bear the exact date.

Pater, Walter, author, 11-4003

Pater patrias, Latin for "father of his country."

Paterfamilias, Latin for "father of a family."

Paterson, City of New Jersey, with an important manufacture of silk. Founded primarily as an industrial centre through the activities of Alexander Hamilton, who organized here the first great industrial corporation in America.

Pathology, The study of diseases, including their nature, causes, progress, symptoms and results.

Patinir, Joachim, Flemish painter

Picture, St. Christopher, 6-1993

Patmore, Coventry, English poet, 12-4231

See also Poetry Index, for poems and notes

Patmos, Island of the Aegean where St. John lived.

Patras, Chief port of western Greece, exporting olive-oil, wine and currants.

population, 14-4918

Patres, rulers of Roman family, 4-1193

Patriarch, The head of a family, used particularly of Hebrew ancestors, Abraham, Isaac, etc. In the Christian Church certain bishops, those of Rome, Antioch and Alexandria, were so called; then Constantinople was added, and later, in 451, Jerusalem.

Patricians, nobility of Rome, rule of, 4-1193

Patrick, St., missionary to Ireland, 8-2844, 2930

relics of, with pictures, 8-2941

Question about, Who was St. Patrick? 17-6288

Patriotic songs and poems, * 17-6249-56

See also England—songs, patriotic; Scotland

—songs of; United States—songs

For list, *see* 20-7678, under headings Patriotic

poems, and National hymns

Patriotism

influence of poetry on, 3-1135

* Young citizen and his flag, 19-7185-86, 7188

See also Canada—songs, patriotic; England—

Poems about; England—songs, patriotic;

Flags—poems about; France—songs;

Scotland—songs of; United States—

songs, patriotic

Patriots' Day, holiday, 6-2094

Patrol boats, 18-6816

Patrons of art

in medieval Europe, 4-1221

Pattie, James O., and the Grand Canyon,

7-2282, 2284

Paul I, tsar of Russia, 16-5694

Paul and Virginia, story, comment on, 18-6716

Paul Pry, A character in the play of the same name by John Poole, produced in 1825. His favorite remark was: "I hope I don't intrude."

Hence Paul Pry means an inquisitive busybody.

Paulinus, missionary

Poem about, Paulinus and Edwin, by F. T.

Palgrave, 6-2246

Paumotu Islands

pearl fisheries, 9-3300

Pausanias, Greek author

value of his descriptions, 12-4215

Pavement

Question about, Why has every pavement a curb of granite? 5-1752

Pavia, Ancient city of Lombardy, Italy, still partly surrounded by walls. It has a famous university, a cathedral and a massive medieval castle.

Certosa, architecture of, 17-6299

Pictures, Certosa (gravure), 17-6303, 6306

Pawnbrokers

origin of sign, three balls, 7-248

Faxton, Sir Joseph

and construction of Crystal Palace, 9-3266

Faxton, William M., American painter, 10-3455

Fayer, Julius, arctic explorer, 13-4712

Payne, John Howard, song-writer

life of, 18-6510-11

See also Poetry Index for poem and note

Picture, early home, 18-6508

Pea Family, in botany, 13-4873-74

fruit of, 7-2613

trees belonging to, 12-7386

Pictures, 7-2620

beach pea, flower (in color), 14-4981

Pea Family—Pictures (continued)

narrow-leaved everlasting pea, flower (in color), 14-4987

Peace

Poems about

Hear, O Ye Nations, by F. L. Hosmer, 17-6256

Peace, by Henry Vaughan, 12-4350

There's a Good Time Coming, by Charles

Mackay, 7-2637

Peace River, Canadian river rising in the Rocky Mountains in northern British Columbia. It flows through Alberta, emptying into Lake Athabaska. 1,065 miles.

Peace River district, Canada

future prospects in agriculture, 7-2560

Peaches, 6-2064

Pictures, 6-2068

Peacock, Thomas Love, *see* Poetry Index for

poem and note

Peacock, bird, 12-4366

fable about, by Aesop, 11-4144

Pictures, 8-2756; 12-4367; (in color), 12-4369

Peacock, ship captured by Hornet, 17-6330

Peacock throne, Delhi, 8-2698, 2700

Peale, Charles Willson, American painter,

9-3327

Pictures

portrait by Benjamin West, 9-3329

portrait of himself, 9-3326

portrait of Samuel Mifflin, 3-971

portrait of Mrs. Rebecca Edgell Mifflin

with granddaughter, 3-971

Peale, Rembrandt, American painter, 9-3327

Peanut-and-spoon race, in water, 8-3024

Peanut taffy, recipe for, 1-340

Peanuts

account of, 7-2614

toys, doll made from, 2-512

Picture, 7-2621

Pear, Prickly, *see* Prickly pear

Pear trees, *see* Pears

Pearce, Charles Sprague, paintings in Library

of Congress, 5-1536

Pearl River, American river, rising in Winston County, Miss. Flows into the Gulf of Mexico. 350 miles.

Pearls, 19-7228-29

how formed, 19-6885, 6888

how obtained, 9-3300

imitation, made from fish scales, 15-5634

Pears

trees, wild, 12-4383

Pictures, 6-2063

wild (in color), 11-4025

Pearson, John, architect of Canadian Parlia-

ment Building, 5-1835

Peary, Marie

born in Arctic Circle, 13-4718

Peary, Robert Edwin

life and arctic explorations, 13-4718

Pictures

portrait, 13-4719

in arctic scenes, 13-4709, 4717, 4720

Peasants' War, Germany, 16th century, 11-3963

Pease, Edward

finances first railway, 5-1616

Peat

how formed, 16-5727

how prepared, with picture, 8-2937

relation to coal, 3-786

Question about, What is peat and how is it made? 7-2612

Pecan, 6-2276

variety of hickory, 12-4248

Peccary, wild pig of America, 5-1722-23

Picture, 5-1719

Pecos River, American river, rising in the Rocky Mountains, New Mexico; flows into the Rio Grande. 800 miles.

Pectin, gum in flax, 9-3318

Pedersen, and wireless telephony, 17-6247

Pedometer, An instrument like a watch, used for measuring distances traveled by walking. It records on a dial place either the number of steps taken by the person carrying it, or the distance based on the individual's average length of step.

Pedro I, emperor of Brazil, 19-7042-43

Pedro II, emperor of Brazil, 19-7042-43

and Bell telephone, 17-6244

Pedrolino, original name of Pierrot, 13-4594

Peo ku, game, 3-1153

Peel, Paul, Canadian painter, 10-3700

GENERAL INDEX

- Peel, Sir Robert**
and tax on corn, 7-2293
Picture, portrait, with father, 15-5616
- Peel, Samuel**
invents process of waterproofing with rubber, 4-1406
- Peel, William**, bravery of, 17-6139
- Peele, George**, dramatist, 2-721
- Peking (or Pekin)**, China
description, 2-434
made capital city by Kublai Khan, 2-432
Pictures, 2-431
Marble Bridge, 1-40
Temple of Heaven (gravure), 9-3095
- Pelargonium**, name for geranium, 19-7170
- Pe-le**, Hawaiian goddess
defied on volcano by Christian convert, 2-446
- Pelee, Mt.**, volcano, West Indies
eruption of, 7-2314
Picture, 6-2176
- Pelew Islands**, 9-3302
- Pelham, Peter**, portrait-painter in American colonies, 9-3325
- Pelicans**, birds, 11-3884
brown pelicans, 14-5018
Pictures, 11-3883
brown pelican, 14-5019
- Pellagra**, disease, spread by sand-flies, 17-6420-21
- Peloponnesian Wars**, and Athens, 3-1081
- Pelorus Jack**, nickname for dolphin, 6-2220
Picture, 6-2219
- Pelton Wheel**, turbine, 15-5429
- Peludo**, hairy armadillo, 7-2398
Picture, 7-2399
- Pelvis**, part of skeleton, 5-1676
- Pelvoux, Mt.**, Alps
Picture, 7-2315
- Pembroke, Countess of**
Poem about. Epitaph on the Countess Dowager of Pembroke, by William Browne, 13-4599
- Pembroke, Richard Clare, Earl of**, 8-2932
- Pemmican**. A staple article of food for hunters, trappers, travelers, etc., in the great Northwest, Arctic and Antarctic regions, consisting of beef or deer meat pounded into a powder and liberally mixed with boiling fat which is poured over it. Sometimes berries are pounded up and mixed in. Pressed into cakes, it is packed in rawhide cases till needed.
- Penang Island**, 9-3184
Picture, 9-3183
- Pencils**
Questions about
What makes a lead pencil write? 9-3354
Why will a slate pencil write on slate but not on paper? 4-1356
- Pendulum**
Foucault's, how to make, 8-3017
invented by Galileo, 1-279
Story about. Discontented Pendulum, 12-4198
- Penelope**, wife of Ulysses, 6-1986
story of, 1-53
- Penfield, Edward**, American artist
Picture, Benjamin Franklin and Deborah, 12-4449
- Penguins**, birds
* account of, 11-4128-29
in antarctic regions, 14-5092
Pictures, 11-4127
- Penikese, Mass.**, station for marine study, 19-7053
- Peninsular War**, Spain, 10-3571; 14-5046
and Portugal, 14-5186
story of. Maid of Saragossa, 14-5119
- Penknife**, as a drawing compass, 16-5886
- Penn, William**
and founding of Pennsylvania, 2-552-53
Pictures
portraits, 2-549; 12-4153
arms on Mason and Dixon's Line marker, 12-4153
house in Philadelphia, 18-6833
- Pennell, Joseph**, American graphic artist, illustrator and author. Born, 1860; died, 1926. One of the foremost American etchers and lithographers. Moved to London, England, in 1884 and was strongly influenced by Whistler. He wrote and illustrated many books and also illustrated books by other authors.
- Pennsylvania**. Great coal- and oil-producing state; area, 45,126 square miles; capital, Harrisburg. Anthracite is found over an area of 472 square miles, and there are great iron, steel and
- Pennsylvania (continued)**
other manufactures. Farming is also important. Here are Philadelphia, the largest city, Pittsburgh, Scranton and Reading. Abbreviation, Pa. Nickname, "Keystone State," "Steel State" or "Coal State." Motto, "Virtue, Liberty and Independence." The name came from Penn, in honor of William Penn, and sylvania, woods. First settlement, Philadelphia, 1683.
described in Northeastern States, 10-3401-08; 11-3773-82; 12-4145-54
early history (arranged chronologically)
founding of colony, 2-552
gets control of Delaware, 2-552
French claim western part, 3-780
Braddock's defeat, 3-780-82
Continental Congresses, 4-1162, 1164
in Revolution, 4-1168-70
signers of Declaration of Independence, 20-7557
signers of Constitution, 20-7574
ratifies Constitution, 5-1698
mineral wealth, 9-3210; 11-3773
petroleum found, 13-4534-35
Pictures
along Mason and Dixon's Line, 12-4153
coal mines, 3-799-801; 11-3775
first oil well, 13-4543
flag (in color), 19-7190
Gettysburg, views of, 18-6837-38
Pennsylvania Museum, Philadelphia, 11-3776
Philadelphia, air view, 11-3776
Pittsburgh, views of, 11-3777, 3781
Stenton House, Philadelphia, 12-4153
Washington Crossing Park, 10-3403
Valley Forge, 18-6835
See also Philadelphia: Petroleum
- Pennsylvania, University of**
beginning of, 12-4308
- Pennsylvania Academy of the Fine Arts**
founding of, 9-3330
- Pennsylvania Station**, New York, note and picture, 2-419
- Penny post**, England, 7-2298
- Pennyroyal**, flower
Picture (in color), 16-5882
- Pennywort, Marsh**, 16-5734
note and picture, 16-5731
- Penobscot River**. American river, rising in Somerset County, Maine, and flowing into Penobscot Bay. 350 miles.
- Penoche**, candy, recipe for, 1-340
- Penrose, J. Doyle**, British painter
Pictures, Bede and his scribe, 1-122
Iduna and the gods, 15-5329
- Pens**
first metal pens, 2-689
* manufacture, 10-3551-53
history of, 10-3550
quill, 10-3550
note with picture, 10-3549
Questions about
What is the hole in the nib of a pen for? 2-689
Why will pen and ink write on paper better than on a slate? 14-5087
Pictures
making from birds' feathers, 10-3549
manufacture, 10-3551-53
- Pension**. An annual income granted by public authority, generally for some former service, military or civil, to assure provision for old age, as a compensation for the low pay of government service. In some European countries a system for pensioning workmen is now in force, as in England and in Germany.
- Pentapus**, fish
Picture, golden-lined pentapus (in color), 16-5787
- Pentstemon**, flower. *Picture* (gravure), 19-7178
- Penumbra**. When the shadow of an opaque object is thrown upon a surface at some distance from it by a fairly strong light, the shadow is divided into two portions, an inner dark portion called the *umbra* and a lighter portion around it called the *penumbra*.
- Peonage**. A term applied to the system of labor which formerly prevailed in Spanish America, especially in Mexico. Begun as a protection of the natives from their conquerors by the government, it deteriorated in many cases into virtual slavery. Labor required from the *peons*, or Indians, was: (1) free, when they served by def-

GENERAL INDEX

Peonage (continued)

inite contract; (2) forced, as punishment for crime or debt. The chief evils came because Indians were segregated in separate villages and were deprived of opportunity to rise. When the institution disappeared the term peon applied still to a laborer of native or mixed blood. Convict labor in the South in the 20th century was found to share some of the abuses of peonage.

Peony, plant, description, 19-7151

Peoples of the desert, * 18-6735-43

Pepin, king of the Franks

gave land to Pope, 11-3960

Pepin, Lake, U. S. *Picture*, 16-5659

Pepper, 8-2991-92

Pictures

black pepper, leaf and fruit (in color), 8-2998

Cayenne pepper, plant (in color), 8-2998

pepper plantation in British Malaya, 8-2991

plant, with ripe berries, 8-2990

Pepper-root, name for toothwort, 17-6279-80

Pepperell, Sir William, at Louisbourg, 2-683; 3-779

Peppermint, plant, 8-2996

Peppermint, recipe for, 1-340; 2-752; 11-3856

Pepperrell, Sir William, *see* Pepperell, Sir William

Pepsin in stomach, 6-2084

Pepys, Samuel, life and Diary, with quotations, 5-1728-30

Picture, Pepys finds John Evelyn at his diary, 5-1726

Percentage. A certain rate of duty, interest, discount or commission allowed on a hundred, as a 5 per cent commission on a land sale.

Perception, explanation of, 11-4066

Percheron, horse, 6-2018

Perches, fishes

account of, 15-5630

climbing, store air, 15-5541

yellow, note and picture, 15-5631

Percy, Thomas

Reliques of Ancient Poetry

influence on English poetry, 6-2027

selection from, King Cophetua and the Beggar Maid, 2-487

Peregrine falcon, 10-3754

Perennials among weeds, 9-3393

Perfumes

ambergris from whales, 6-2215

how to make, 3-904

made from by-products of coal, 2-636

of flowers, 10-3734

Pergamum, Greece, sculpture of, 12-4460, 4467

Pericles, Greek leader

Cresilas made bust of, 12-4327-28

life and influence, 2-706; 3-1080

Picture, portrait, 2-701

Peridot, precious stone, 19-7230

Picture (in color) facing 19-7225

Perihelion, least distance from sun, 9-3239

Periscope of submarine, 1-198

Picture, 1-199

Periwinkle, or myrtle

Pictures, flower (gravure) 19-7180; (in color), 14-4988

Periwinkles, molluscs, 19-6892

Pictures, 19-6882; (in color), 19-6893

Perjury. The crime of knowing and willfully giving false testimony in a question at issue in the law courts. It has always been severely punished; to-day by fine and imprisonment.

Perkin, Sir William, British chemist, 13-4531

Permallay, new submarine cable, 17-6054

Permian period, in geology, 4-1296

Pernambuco, or **Recife**. Brazilian port, exporting sugar, cotton, coffee, cocoa, hides, dyewoods and rubber. Founded in 1504, it has a cathedral and some of the finest buildings in the country.

Perneb, Lord Chamberlain, ancient Egypt

tomb of, 3-809-10

Peroxid of hydrogen (H_2O_2). Discovered in 1818 by a French chemist, Thénard, it is the colorless compound of hydrogen and oxygen containing twice as much oxygen as is contained in water. Minute quantities of it occur in the air, in rain water and in snow. A powerful bleaching agent, it is used for bleaching ostrich feathers, silk, ivory, wood, etc. In medicine and surgery it is used as an antiseptic. It may be prepared by action of acids on peroxid of sodium.

Perrault, Charles, French writer, 9-3193-94

Picture, portrait, 9-3193

Perronet, Edward, hymn-writer, 12-4440

Perry, James, and manufacture of steel pens, 10-3550

Perry, Matthew Calbraith, Commodore

brother of O. H. Perry, 17-6332

opened Japan to foreigners, 2-564

Perry, Nora, *see* Poetry index for poem and note

Perry, Oliver Hazard, naval commander

life and work, 17-6330-31

in War of 1812, 5-1704

Perseids, shower of meteors, 10-3672

Persepolis, Persia, architecture of, 14-5209-10

Pictures, 14-5206

palace of Darius the Great, 3-915

rock tombs, 3-915

Perseus, mythical character, 15-5442-43

Picture, rescuing the beautiful Princess, 15-5442

Pershing, John Joseph (1860-). American general, graduated from U. S. Military Academy in 1886. Served in the Spanish-American War, and with distinction in the Philippines, for which services he was promoted from captain to brigadier-general. While absent on duty on the Mexican border his wife and three young daughters were lost in a fire, but his son was rescued. In 1917 he became commander of all troops on Mexican border, was then chosen to command the A. E. F. in the World War in Europe, and was made general, U. S. A. Insisted upon integrity of American army, and as Commander-in-Chief, planned the American operations at the Marne in 1918, at St. Michel and in the Meuse-Argonne. He was appointed permanent general, and in 1921 Chief-of-Staff.

Persia

architecture, *see* Architecture, Persian

area, 3-909

art, *see* Art, Persian

cities, 3-910, 914

description, 3-909-10

government, modern, 3-918

* history, 3-910-18

attack on Greece, 13-4583-84

See also Greece, Ancient—history

capture of Babylon, 2-660

invasion of India, 8-2822

literature, 15-5462-63

map, 3-908

products, 3-909

religion, 3-909, 912

sculpture, *see* Sculpture, Persian

sugar-cane cultivation, 10-3415

travel in, 3-910

See also Architecture, Persian; Art, Persian

Pictures, 3-909-23

Persian birds, name given to hens, 12-4491

Persians. The name given to the inhabitants of Persia. Strictly there is no race of this name. One of the races inhabiting this region is called Iranians from their language. As a nation the Persians have had a great history and an interesting literature.

Persicaria, flower

Pictures

climbing (in color), 15-5400

pink (in color), 15-5399

Persimmon, or **date plum**. A yellow thin-skinned fruit containing a sweet pulp and belonging to the family of Ebenaceæ. Japanese persimmon, the principal native fruit of Japan, grows also in southern China, some of the East Indies, and in Southern Europe. Introduced into the United States, it flourishes in California and the Gulf and Atlantic states as far north as Virginia. The American persimmon is native from Connecticut and Kansas south to Florida. The fruit is smaller than the Japanese variety.

Personal property. Distinguished in law from real property, personal property passes, upon the death of the owner intestate, not to his heir, but to his personal representative. It generally consists of movable things, as cattle, goods, money, stocks, bonds, patent rights, copyrights, etc.

Perspective, explanation, 14-5222

in Persian art, 2-575-76

invented, in early Christian art, 2-575

Question about. Why do two sides of a road seem to meet in the distance? 14-5222

Perth, capital of Western Australia, 7-2470

Perth. Cathedral city and capital of Perthshire, Scotland, on the Tay. Finely situated among

GENERAL INDEX

Perth (continued)

wooded hills, it is noted especially for its dyeing industry. It contains a 13th-century church in which John Knox preached.

Peru. Western maritime republic of South America; area, 532,047 square miles; capital, Lima. The centre and greater part is a lofty Andean plateau, sinking in the east to the forests of the Amazon, while the fertile coastal belt is the chief centre of population. The largest towns are Callao, the port of Lima, Arequipa, Mollendo, Ayacucho, Payta and Cuzco; copper, silver, petroleum, sugar, cotton, coffee, alpaca wool and guano are the chief exports.

description, 19-6980, 6982

* history, 19-6980, 6982

conquest by Pizarro, 19-6861-62

freed from Spanish rule, 19-6864

Inca civilization, 19-6860-61

war with Chile, 19-7036, 7038

Llama, use in ancient Peru, 5-1600

mines, with picture, 19-6983

Tacna and Arica, claim on, 19-7038

Pictures, 19-6857, 6859, 6865

Perugia. Picturesque city of central Italy, the former centre of the Umbrian school of art. It has a richly decorated Gothic cathedral, while the Church of St. Peter has pictures and pillars by Raphael, Parmigiano and Perugino.

in the history of painting, 3-959-60
Picture, church of San Bernardino (gravure), 17-6303

Ferrigno (Pietro Vannucci), Italian painter, 3-959

Picture, Virgin and Child (gravure), 3-964

Peruvian bark

Picture, plant producing, cinchona (in color), 8-2998

Peseta. A Spanish gold coin in use since 1868, equivalent to about 20 cents and divided into 100 centimos. Also the name for a former Spanish silver coin worth about 25 cents.

Peshawar. British military centre in India near the Khyber Pass.

Peso. A Spanish or a Mexican dollar.

Pessimism. The theory that the world is in essence evil and that life tends to become altogether undesirable. It is an attitude toward life rather than a doctrine.

Pestalozzi, John Henry, Swiss educator, 16-6006
life and influence, 14-5252-53
devotion to children, story of, 1-127-28

Pictures

portrait, 14-5247

portrait, in group, 14-5253

Pétain, Henri (1856-). French soldier, obtained his commission from St. Cyr, passed through the Ecole de Guerre, and filled various staff appointments. Upon the outbreak of World War he was given a brigade, then a division, and in October an army corps. Distinguished himself in French offensive near Arras in May, 1915, and was given command of the Second Army. In February, 1916, he fought the German attack upon Verdun and saved the city. He was made a Grand Officer of the Legion of Honor and was in command of the Armies of the Centre. In 1917 he became chief of general staff of army and then Commander-in-Chief of French armies on western front. He nursed the army back to healthy morale, and then fought battles of limited objectives as August 1 at Verdun and Chemin des Dames. When British Fifth Army rolled up near St. Quentin, in March, 1918, did much to relieve the situation. During the subsequent advance he maintained brilliant liaison with flanks. With peace Pétain was made Marshal of France.

Petal, part of flower, 3-1013

Petar Pan. by Barrie, summary of, 13-4659-64

Peter Parley Series of books, 14-5014

Peter the Great, tsar of Russia, 16-5692-93, 5695
sent expedition to Alaska, 16-5789

Pictures, scenes from his life, 16-5695

Peter the Hermit, and First Crusade, 7-2584-85

Peterborough. A city in Ontario, Canada. It has the largest hydraulic lift in the world.

Peterborough, England

cathedral, 16-5970

Picture, cathedral (gravure), 16-5975

Peterborough, N. H., MacDowell's home, 19-6926

Picture, Colony Hall, 19-6926

Petersburg Va., siege of, 7-2440

Petition. A supplication addressed to one who has the right to grant it. Every British subject has the right to petition the sovereign or his representative or the governing houses. The American Constitution likewise guarantees to its citizens the right of petition for a redress of grievances.

Petition of Right, 1628. Declaration by the English Parliament of the rights of the people of England.

signed by Charles I, 11-3849

Peto, name for titmouse, 14-5025

Petrarch, Italian poet

life and writings, 17-6152

Picture, portrait, 17-6149

Petrels, birds

* account of, 11-4126, 4128

origin of name, 11-4128

stormy

habits of, 11-4128

Poem about. Stormy Petrel, by Barry Cornwall, 14-5130

Pictures. 11-4125

fork-tailed (in color) 8-2898

stormy petrel (in color) 9-3132

Petrified forests

in Arizona, 9-3026, 3028

in Yellowstone Park, 2-733

Picture, in the Painted Desert, 9-3025

Petrograd, see Leningrad

Petroleum

* Oil and what it can do, 13-4533-52

advantages over coal, 13-4538-39

appearance, in crude form, 13-4534

from oil shale, 13-4542, 4550

fuel for ships, 12-4416; 17-6406

battleships, 18-6816

medical use, 13-4534

nations' struggle for, 13-4533

origin, animal and vegetable, 13-4535

production

countries producing, 13-4538, 4542

for world, 13-4538

in Canada

well farthest north, Fort Norman, 7-2560

Picture, gusher, 13-4546

in Rumania, 14-4922

in Russia, 16-5854

in U. S., 9-3210

in Central states, 17-6040

in Oklahoma, 19-7242

in Pennsylvania, 11-3773

largest producer, 10-3399

products obtained from, 9-3210; 13-4539-40, 4542

refineries, 13-4542, 4551

substitutes, possible, 13-4542

transportation, 13-4541-42, 4552

used for lighting, 3-996

waste in the industry, 13-4538

wells

deepest in world, 13-4543

drilling of, 13-4540-41, 4544

gushers, explanation, 13-4535, 4538

notes and pictures, 13-4546-47

Pictures. * illustrating the industry, 13-4533, 4536-52

Petrous bone, in ear, 9-2208

Pettie, John, British painter

Pictures

Knight's Vigil, 14-5197

Prince Charlie, the Young Pretender, 15-5638

The Puritan, 6-1975

The Royalist, 6-1975

Peveril of the Peak, by Scott, note on, 11-407

Pewees, birds

account of, 13-4831-32; 14-5142-43

habitat in U. S. and Canada, 14-5023

Pewter. An alloy of tin with lead, antimony or bismuth. It is soft, similar in appearance to tin, but duller and darker. Formerly extensively used for plates, teapots and other domestic utensils, but because of poison in lead other alloys are now used.

Phaeton, tried to drive Sun's chariot, 9-3233

Phalangers, animals, 7-2504

Phalanx. Ancient Greek name for the heavy infantry in battle line. Usual depth seems to have been eight men. It was closely packed with shields touching. The pikes were about 20 feet long and the first 5 ranks projected in front. The others held their spears over their comrades'

GENERAL INDEX

Phalanx (continued)

shoulders and dropped them if it became necessary to manoeuvre.

Phalaropes, birds, 11-4012

Pictures, 11-4011; (in color), 9-3282

Phanerogams, flowering plants

meaning of word, 10-3721

Pharaohs, kings of Egypt, *see* Egypt, Ancient; also names of kings

Pharisees. A Jewish religious party who insisted upon the strict observance of the law, both written and oral; believed in the restoration of a Kingdom of Israel when their punishment of foreign domination was ended; kept themselves apart from the mass of the people. They were great enemies of Christ and finally brought about his death.

Pharnaces, son of Mithridates

fought Julius Caesar, 7-2487

Pharos, or lighthouse

of Alexandria, *see* Alexandria

Pharsalia, Battle of, Caesar's victory over

Pompey, 4-1199, 1366

Pheasants, birds

* account of, 12-4365-66

ring-necked, on Pacific coast, 14-5148

name given to grouse, 13-4760

Pictures, 12-4362, 4367

Pictures, (in color) 8-2899

golden pheasant, 12-4371

Lady Amherst's pheasant, 12-4371

Pheasant's eye, flower

Picture, (in color) 15-5400

Phedias, *see* Phidias

Phedippides, Greek runner, 3-887

Phenicians, *see* Phoenicians

Phenomenal berry, cross between bramble and raspberry, 4-1388

Phidias, Greek sculptor, 3-1080

* work and characteristics, 12-4220-22

expressed spiritual ideal of the gods, 12-4327

friend of Pericles, 2-706

made friezes of Parthenon, 8-3009

statue of Athene, Parthenon, 12-4220

statue of Zeus, Olympia, 12-4220-21

Pictures

portrait, 2-701

Athene, in Parthenon (statue), 3-1079

head of Athene, 12-4219

Jupiter, statue of, Olympia (gravure) 7-2608

See also Parthenon—*Pictures*

Phigalia, temple of Apollo, frieze of, 12-4222

Philadelphia. Chief city of Pennsylvania, on the confluence of the Schuylkill and Delaware rivers. Founded by William Penn, the Quaker City has grown rapidly, its suburban territory in especial being very beautiful. Fine parks, buildings and monuments are numerous. In historical interest the city is rich. It has communication with the productive Middle West. Oil is one of its largest shipments; in the manufacture of steam locomotives, street-railway cars, knit goods, carpets and rugs Philadelphia leads. Shipbuilding is very important.

Carpenters' Hall, note and picture, 18-6833

Centennial Exposition, 1876, 8-2669

influence of exposition on American art,

9-3334; 14-4936; 18-6682

founding, 2-553

historical interest, 18-6826

Independence Hall, 18-6830-31

library founded by Franklin, 12-4449

Penn's house, note and picture, 18-6833

population, 1920, 8-2676

Pictures, 11-3776

historic buildings, 18-6825, 6830, 6833

Independence Hall, 18-6825

Philæ, temple of Isis, 14-5212

Pictures, (gravure) 14-5213, 5215

Philip, King (c. 1639-76). A famous Indian chief called King Philip by the English, though his Indian name was Metacomet. He united the Indians of New England in a general war upon the whites. The death of King Philip in 1676 put an end to "King Philip's War."

Philip II, king of Macedon

becomes ruler of Greece, 3-1082

and a traitor, story, 8-2963

and prisoner, story, 8-2964

conquest of Athens, 2-707

Picture, portrait, 2-701

Philip II, king of Spain, 14-5044

and the Netherlands, 15-5560, 5562

Philip II (continued)

and Portugal, 14-5186

and Queen Elizabeth, 5-1820

husband of Mary, queen of England, 5-1817

Pictures

portraits by Velasquez (gravure), 4-1501, 1503

receiving deputation from Low Countries, 14-5039

Philip II (Philip Augustus), king of France

conquered English possessions in France,

10-3432

in Third Crusade, 7-2587-88

Philippa, Queen, wife of Edward III

death of, 5-1683

saved men of Calais, 5-1682

Philippi, Battle of. Famous as the battle in the last act of Shakespeare's play of Julius Caesar. Two battles were fought in 42 B.C. between the forces of Brutus and Cassius, the murderers of Caesar, and Mark Antony and Octavius, Caesar's heir. The defeat and deaths of Cassius and Brutus made Antony and Octavius masters of the Roman world.

Philippic, origin of word, 2-707

Philippines

* account of, 10-3588, 3590

description, with pictures, 10-3589, 3591

education, 10-3594

government, 10-3588

history, 10-3588

products, 10-3588, 3590

Manila hemp, 11-3792

Pictures, 10-3589, 3591

irrigation of rice fields, 7-2551

terraced rice fields, 5-1853

Philippopolis, Bulgaria, 14-4926

Phillips, Wendell (1811-84). American orator and reformer, born and died in Boston. Became an anti-slavery leader, and the orator of the movement; wrote for the Liberator and the Anti-slavery Standard; published a number of pamphlets.

Philistine. Cretans of the mainland, called Philistines by the Israelites.

Phillpotts, Eden, novelist, 11-3899

Philosophy. In the narrowest sense, the term is nearly equivalent to metaphysics, but is usually understood as including all the liberal arts and sciences, hence the degree of Doctor of Philosophy, for proficiency in any of these.

Philosophy, Greek

Socrates, Plato and Aristotle, 16-5915-20

Phlox, flowers

varieties and description of, 18-6666

Picture, mountain phlox, 18-6659

Picture (gravure), 19-7176

Phobos, moon of Mars, 9-3293

Phoebe, name for Diana as goddess of the moon,

9-3227

Phoebes, birds

account of, 13-4831

habitat in U. S. and Canada, 14-5023

Say's phoebe, account of, 14-5142-43

Picture, nest, 13-4765

Phoenicia. The Greek and Roman name for the territory along the Mediterranean coast of Syria. Bounded on the east by the Lebanon Mountains, the country was some 200 miles long and from 5 to 15 miles broad. The origin of the name is unknown. The different settlements were never welded together into a powerful kingdom and never played an important political part.

Phoenicians

and alphabet, 10-3546

explorations and commerce, 1-83-84; 11-3910, 3912

in Spain, 14-5042

introduced flax-growing into Ireland, 9-3317

sailed around Africa, 11-3912

Picture, Ancient Britons trading with the

Phoenicians, 4-1431

Phoenix. Capital of the state of Arizona. Centre of the Salt River Valley, the richest agricultural district in the state.

Phoenix, imaginary bird, 1-355

legend of, 18-6558

may be Chinese golden pheasant, 12-4366

Phonograph, *see* Talking machines

Phormium, or New Zealand flax

account of, 8-2786

use of, 11-3792

Picture, cultivation of, 8-2787

GENERAL INDEX

Phosphorescence

- in midges, 17-6419-20
- of deep-sea creatures, 11-3841
- of fireflies, 18-6629
- of glowworms, 18-6629

Phosphorescent light, definition, 2-587

Phosphorus, in ancient mythology

- was Venus, the morning star, 9-3233

Phosphorus

- and protoplasm, 2-664
- disease caused by, 19-6968
- in matches, 1-307, 310; 19-6968

Photo-engraving, explanation and illustrations, 3-1065

Photography

- * Using the camera outdoors, 13-4617
- blue-print or sepia-print pictures, how to make, 15-5331-32
- camera superior to eye for tiny objects, 17-6080
- color, in moving pictures, 18-6598, 6600
- history, 18-6593
- influence on painting of portraits, 8-2859
- of stars, 1-288
- on a table-top, 18-6517-18
- photomaton, note and picture (gravure), 18-frontis.
- preparing pictures for printing, with illustration, 3-1065
- transmission of pictures
 - by radio, 17-6370
 - by telephone wires, 17-6056, 6060
- trick photographs of moon and mountains, 18-6516
- without a camera, 8-2739-40
- X-ray, explanation, 16-5942
- See also Moving pictures
- Photometer**, measures brightness of star, 1-288
- Photoplay**, see Moving pictures—plays
- Photoradiograms**, pictures sent by radio
 - account of, 17-6188, 6370, 6372
- Photosynthesis**, process in plants, 2-616; 11-4094
- Phrenology**
 - Question about. Is phrenology really an exact science? 4-1354

- Phyfe, Duncan**, furniture-maker, 18-6774-75
- Phylloxera**, insect, damages grapes, 6-2062
- Physical exercises**, see Exercises, Physical

Physical geography

- * Dominion of Canada, 1-105-18
- * Face of the earth, 6-2169-76
- * Forests, woods and deserts, 7-2415-21
- * How sun and wind made the hills, 2-629-34
- * Mountains and glaciers, 7-2313-16
- * Rivers and the seas, 7-2537-42
- * What climate means to us, 8-2663-68
- * Why the seasons come and go, 8-2791-94
- See also Earth; also names of countries and continents under subhead "physical geography" as, Africa—physical geography
- For list of main articles, see 20-7615-16
- Pictures**, Geological formations, 6-2072-73

Physicians

- * Conquerors of disease, 15-5481-93
- * World's great doctors, 8-2721-30

Physics

- * heat and temperature, 16-5661-63
- * matter, its nature and properties, 12-4155-59
 - For list of titles on properties of matter, see 20-7617
- * measurement of motion, time, space, weight, 14-4901-03
- * motion, 13-4665-68
- * size and weight; or, specific gravity, 14-5035-38
 - See also Electricity; Gravitation; Heat; Light; Sound; Thermometer; Water; Weather
 - For list of main articles, see 20-7617-23

Physiognomy. The art of discovering the predominant temper and other mental characteristics from the outward appearance, especially from the features of the face.

Physiography. The study of the earth, its spherical form, its envelopes of air and water, its cold crust and heated interior and their influence on life.

Physiology

- centre of gravity of body, 14-5178
- history
 - * discoveries from Galen to present, 8-2724-30
 - * discoveries with microscope, 13-4669-71
 - See also Blood; Bones; Brain; Cells; Living; Ear; Eyes; Food; Glands; Heart; Lungs;

Physiology (continued)

- Medicine; Muscles; Nerves; Skin; Speech; Taste; Teeth

For list of thirty articles on Physiology and Hygiene in the Book of Our Own Life, see 20-7608-12

Piano

- * history, parts, and manufacture, 5-1795-1802
- high notes heard best, 18-6438-39
- how tones are produced, 10-3556
- relation of strings to quality of sound, 19-6851-52

Question about. When we sing a note to the piano, why does it answer? 5-1750

- * **Pictures**, with notes, showing manufacture, 5-1798-1802

Piave. Italian river flowing from the Carnic Alps to the Adriatic. In the World War the region of the Piave was an Italian battle area. 125 miles.

Picardy. Part of France lying nearest to England. Before the Revolution it was one of the chief French provinces, containing Boulogne, Calais, Amiens, Abbeville and St. Quentin.

Picaresque novel, 19-7127

Piccolo. A flute of small dimensions having the same compass as an ordinary flute, with all the notes sounding an octave higher than their notation. Made in three keys, C, D flat and E flat.

Pichiciagos, pigmy armadillos, 7-2398

Picture, 7-2399

- Pickens, Andrew**, in American Revolution, 4-1170
- Pickrel**, fish, note and picture, 15-5631

Pickrel-weed, description, 18-6572

Picture, 18-6569

- Pickering, Edward Charles**, astronomer, 1-288
- Picture, portrait, 1-281

- Pickering, William Henry**, astronomer, 1-288
- Picture, portrait, 1-281

Picking plums, game with marbles, 17-6389

- Pickthall, Marjorie**, Canadian author, 14-5110; 15-5374

Picture, portrait, 14-5102

Picnic, preparing lunch for, 11-4015

Picric acid, made from by-products of coal, 2-636

Pictographs, of Egyptian boats, 11-3910

Picts, invaded England after Romans left, 4-1324

Picture-frames, how to make, 4-1393-94

- Picture transmission by radio**, 17-6188, 6370, 6372

- Picture transmission by wire**, 17-6056, 6060, 6188

Picture-writing, see Writing

Pictures

- blue-print, how to make, 15-5331-32
- distorted, how to make, 18-6644
- how to take without a camera, 8-2739-40
- made with 12 lines and a dot, 18-6524
- name-pictures, how to make, 12-4502
- on canvas, 19-7081
- printed, how made, 3-1065; 9-3390
- sepia-print, how to make, 15-5331-32
- spinning cards to blend pictures, 17-6390
- squares, pictures built up from, 2-753
- See also Photography; Puzzle pictures. For picture of a subject, look under its name

Piddocks, molluscs, 19-6888

Picture, 19-6891

Piece of eight. Name for a Spanish dollar widely current in the 17th and 18th centuries throughout North and South America. It was so called because its value was eight reals. In England, in 1797, owing to the scarcity of coin, pieces of eight were surcharged in large numbers and issued as legal English currency.

Piedmont. Formerly a principality and now an important district of northwest Italy, surrounding Turin. It formed the chief part of the kingdom of Sardinia, which played a great part in the wars of liberation and supplied Italy with kings.

massacre of

Poem about. On the Late Massacre in Piedmont, by Milton, 1-328

Piedmont Plateau, in U. S., 1-154

Pierce, Franklin, president of U. S.

- administration, 7-2429; 11-3940
- life, outline of, 11-3952

Picture, portrait (gravure), 11-3946

Pierpont, John, see Poetry Index for poem and note

GENERAL INDEX

Pierre, and printing press, 9-3389

Pierre. Capital of the State of South Dakota, on the Missouri River. It is the centre of an extensive stock-raising and farming district. It is lighted by natural gas. A government industrial school for Indians is among the public buildings.

Pierrefonds, Château of, 18-6492

Picture, 18-6497

Pierrot

Question about. Who is Pierrot? 13-4594

Piers Plowman, Vision of, 1-305

Pietermaritzburg. Cathedral city, railway centre and capital of Natal, South Africa, with tanning industries.

Pig, see Pigs

Pig iron, how treated in puddling furnace, 6-1938

Pigalle, Jean Baptiste, French sculptor, 13-4703

Pigeon hawk, a falcon, 10-3756

Pigeons

* Pigeons and the doves, 12-4283-88
blue rock, ancestor of all pigeons, 2-594
of America, 14-5144-45
story about, Cher Ami, a carrier pigeon, 7-2319

use in ancient Greece, 12-4285

wild, or passenger, now extinct, 14-5020

Poem about. Cher Ami, D.S.C., by H. W. Farrington, 6-2151

Pictures, 12-4282-83, 4287

band-tailed, 14-5144

European wood pigeon (in color), 3-2900

Jambu fruit pigeon (in color), 12-4370

orange fruit pigeon (in color), 12-4371

passenger pigeon, 12-4283

superb fruit pigeon (in color), 10-3621

Pigment. The coloring matter to be found in certain cells of the dermis of vertebrates, and in the epidermis of arthropods. In mammals the pigment is brown or nearly black. In birds the coloring matter is mostly in the feathers.

Pigmies, homes of, with picture, 5-1656

Pigmy elephants, 6-2146

Picture, 7-2399

Pigmy elephants, 6-2146

Pigmy hippopotamus of Africa, 5-1724

Pigmy pigs of Africa, 5-1720

Pigmy whale, 6-2216

Pigs

* account of, 5-1717-25

breeds, description, 5-1720

meat preparation in stock-yards, 7-2512-13

production in U. S., 9-3207

use by peasants, Middle Ages, 5-1718, 1720

wild, varieties of, 5-1720, 1722

Pictures, 5-1719-25

Pike, Zebulon Montgomery (1779-1813). An American soldier and explorer. In 1806 he discovered the famous peak of the Rocky Mountains now called Pike's Peak. Pike was killed during the War of 1812 while attacking York, Upper Canada.

Pike, fish

description, 15-5634-35

sand, 15-5630

wall-eyed, 15-5630

Piki, Indian corn cakes, 9-3030

Pilaster, definition, 16-5968

Pilchards, name for sardines, 16-5776

Picture (in color), 16-5782

Pilgrim fathers

landing of, description for game, 8-3023

* settlement in America, 2-516-18, 550

Poem about. Pilgrim Fathers, by Felicia Hemans, 16-6022

Picture. embarking at Plymouth, England, for America, 2-545

Pilgrimages, Religious, reasons for, 7-2583

Pilgrims, see Pilgrim Fathers

Pilgrim's Progress, by Bunyan

account of, 4-1478-80

* quotations and summary, illustrated, 15-5543-52

Pill wood-lice, 16-5956

Pilot fish, comparison to shark, 15-5541

Pilot snake, 15-5111

Pilsen. Manufacturing and brewing centre in Bohemia, Czechoslovakia. Near here are the Skoda ironworks.

Piltown skull of primitive man, its period, 6-1928

Pimento, tree, 8-2992

Pictures, 8-2990

leaf and flower (in color) 8-2998

Pimpernel, flower

Pictures (in color)

blue pimpernel, 15-5399

scarlet pimpernel, 15-5400

yellow pimpernel, 14-4988

Pinchot, Gifford, work for forestry, 8-2804

Pinckney, Charles, in Constitutional Convention, 20-7559

Pinckney, Charles Cotesworth, American statesman

opposed tribute to France, 5-1702

Picture, portrait, 5-1694

Pindar, Greek poet, 16-5751

Pine, Robert Edge, English painter, 9-3327

Pine Family, 12-4249-50

Pine-marten, animal, 3-872

Picture, 3-870

Pine-sap, plant, description, 18-6572; 19-6937

Pine Tree Money. Money coined in Massachusetts from 1652 to 1682, in the values of a shilling, sixpence and threepence. On one side was a pine tree, on the other the words New England and the date.

Pine Tree State, name for Maine, 13-4636

Pine trees

injured by sawflies, 17-6232

products from, 9-3151

Scotch pine, description and pictures, 11-4106

seeds, how produced, 3-885

sugar pine, 13-4636

varieties of, 12-4249

white pine, 13-4636-37

Pictures

Scotch pine, fruit of (in color) 11-4028

sugar pine, 13-4639

white pine, 13-4637

Pineal gland, 9-3223

Pineapple weed, plant, 19-6940

Pineapples, account of, 6-2062

Hawaiian production, 15-5451

Pictures

cross section, 2-507

plantations of, 6-2067; 15-5451

in Hawaii, 9-3301

Pineda, Spanish explorer, 1-244

Pinedo, Marquis de, Italian aviator, 1-182

Picture, with plane, 1-183

Pinehurst, N. C., notes and pictures, 2-760

Pinel, Philippe, treatment for insane, 8-2728

Pink Family, in botany, 13-4873

Pinks, flowers

alpine, see Moss campions

garden pinks related to carnations, 19-7170

sea, or marsh, pinks, 14-5162, 5165; 15-5607

Picture, sea-pink or thrift, 15-5607

Pictures (in color)

Deptford pink, 13-4879

proliferous or childing, 15-5611

sea-pink, 15-5609

Pinnacle, ship, description, 11-3916

Pins

* history and modern manufacture, 9-3041-45

superstitions about, 9-3042

Question about. Why does a pin get hot if rubbed against a stone? 11-3840-41

Pictures, showing manufacture, 9-3043-45

Pintails, ducks, 11-3888

Pictures, 11-3886; (in color) 9-3282

Pinturicchio (Bernardino di Betti), Italian painter, 3-959

Pictures

Catherine of Alexandria (gravure) 3-962

Raphael (gravure) 3-964

Pinx. Abbreviation for Latin word *pinxit*, (he) painted; formerly much used by artists when signing their pictures.

Pinxterflower, 13-4776

Picture, 13-4777

Pinzón, Vicente, Spanish explorer, and discovery of Brazil, 19-7040

Piombo, Sebastiano del, Italian painter, 3-1106

Picture. La Fornarina (gravure) 3-1111

Pipe of peace

Question about. What is the Indian's pipe of peace? 18-6553

Pipefish, fish, 16-5778

Pictures, 16-5779

greater pipefish (in color) 16-5784

Piper, fish

Picture, (in color) 16-5784

GENERAL INDEX

Pipits, birds, 9-3136

Pictures in color
meadow pipit, 8-2900
rock pipit, 9-3284
tree pipit, 9-3281

Piræus, Greece

Pictures, 14-4921, 4927

Piranesi, Italian artist, influence of, 6-2077

Pirate, novel by Scott, note on, 11-4071

Pirate. One who commits robbery on the high seas; used loosely for a plunderer.
of North Africa, 18-6808

Pisa, Italy

leaning tower, note and picture, 13-4794
pulpit by Niccola, in Baptistery, 13-4603-04

Pictures

Baptistery (gravure) 1-72
cathedral, 8-3010
cathedral and leaning tower (gravure) 16-5721
general view, 13-4575

Pisano, Andrea, Italian sculptor, 13-4604

Pisano, Giovanni, Italian sculptor, 13-4604

roused artistic feeling, 4-1459

Pictures (gravure)

panel of pulpit at Pisa, 13-4610
pulpit by, 13-4612

Pisano, Niccola, Italian sculptor, 13-4603-04

Pissaro, Camille, French painter, 7-2482

Picture, Quay at Rouen, 8-2713

Pistachio nuts, 6-2278

Picture (in color) 8-3000

Pistil, part of flower, 3-1014

Picture, 2-509

Pistols, Colt's invention, 19-7210

Pitcairn Island, account of, 9-3298, 3300

Pitch, of sound

depends on number of vibrations, 18-6439
relation to mass and length of string, 19-6851-52

Pitcher, Molly. The nickname of Mrs. John Hays (Mary Ludwig), an American heroine who carried a water pitcher for the soldiers of Washington's army during the American Revolution. On one occasion her husband, a gunner, fell wounded and Molly sprang to the gun and took his place.

Pitcher plants, description, 17-6280-81; 19-6932

insects as food of, 4-1280

Picture and note, 1-331

Pitchstone, game with marbles, 17-6389

Pitchstone, rock, description, 17-6386

Fith-ball, electrical experiments with, 5-1773-74

Pitt, William, 1st earl of Chatham

character and influence, 6-2098

Pitt, William, the Younger

opposition to Napoleon I. 6-2201-04

proposed union of English and Irish Parliaments, 8-2936

death of, 6-2204

Picture, portrait, with parents, 15-5615

Pitta, bird

Picture, Gurney's pitta (in color), 10-3623

Pitti Palace, Florence, 17-6298

planned by Brunelleschi, 5-1739

Picture, 17-6297

Pittsburgh. Centre of the United States steel and iron industry. In the coalfield of western Pennsylvania. Standing on the Ohio River, it makes rails, bridges and foundry products of all kinds.

notes and pictures, 11-3777, 3781

Pinutitary gland, 9-3223

Pizarro, Francisco, conqueror of Peru,

19-6861-62

Plague, description of, 10-3466

source of, a flea, 3-1132

Plaice, fish, 16-5779

Pictures, 16-5777; (in color) 16-5781

Plains of Abraham, Quebec

Poem about. The Plains of Abraham, by Charles Sangster, 10-3482

See also Quebec

Planck, Max, physicist, and theories of light, 16-5808-09

Plane, tool, how to use, 1-233-34

Plane trees, 13-4638, 4640

description, 12-4386, 4395

false plane, or sycamore maple, 11-4100

oriental, 11-4020

western plane, called sycamore or buttonwood, 13-4638

Plane trees (continued)

Pictures

fruit (in color), 11-4026

in winter, 13-4643

tree, flower and leaf, 12-4395

Planet Deep, greatest ocean depth, 3-875

Planetesimal theory of solar system, 1-144; 10-3543-44

Planetoids, definition, 9-3180

Planets

* Inner planets, Mercury, Venus and Mars, 9-3289-93

* Outer planets, Jupiter, Saturn, Uranus and Neptune, 10-3409-14

distance from earth, measured by speed of train, 9-3034

distance from sun and length of year, 9-3180

Kepler discovered law of motion, 1-206

length of year, 11-3977

moons of, *see* Moons of planets

origin of, 9-3180

possible communication with, 4-1353-54

Questions about

Does change go on in other worlds? 18-6693

Has each planet a law of gravitation? 1-187

How can we tell a star from a planet? 5-1750

Pictures, 1-25

diagram showing speed, 10-3414

how formed, 9-3175

showing comparative sizes, 9-3179; 10-3409

showing sizes, and distances from sun, 1-23

Plant box, how to make, 3-893-94

Plant-breeding

* Burbank's work in, 15-5381-86

* What man can do with a plant, 4-1469-75

methods and results, 4-1388, 1390; 5-1756

Saunders family and wheat, 4-1470-71

Pictures

experiments with light, 4-1475

showing changes, 4-1389

Plant-cutters, birds, 9-3288

Plant-fleas, 17-6077

Plant-lice, *see* Aphids

Plant stand, directions for making, 7-2645-47

Plantagenet. From *planta genesta*, broom. The name of a royal house of England which ruled between 1154 and 1399, with the following kings: Henry II, Richard I, John, Henry III, Edward I, Edward II, Edward III, Richard II; followed by the Lancastrian dynasty.

Plantain, fruit, 5-1624; 6-2060

Plantain, Water, 16-5876

note on, 16-5874

Pictures, 16-5874; (in color) 16-5884

Plantain-eaters, birds, 10-3501-02

Picture, 10-3499

Planté, Gaston, invented storage battery, 16-5676

Plants

General articles, arranged by paging

* A plant's struggle for life, 1-329-34

* How plants work for their living, 2-613-18

* How plants move and feel, 2-743-46

* Plants and their ancestors, 3-881-85

* Flowers and fruits, 3-1013-16

* Flower's wonderful seed-box, 3-1083-87

* Plants in their homes, 4-1275-81

* How plants came to be, 4-1387-90

* What man can do with a plant, 4-1469-75

* How plants serve mankind, 5-1623-28

* Forage plants, 7-2409-12

* Plants of the breakfast table, 7-2531-36

* Useful vegetables, 7-2613-24

* Plants that clothe us, 8-2783-90

* Spice plants, 8-2991-96

* Plants useful in industry, 9-3151-56

* Queer plants, 9-3261-68

* Weeds that creep over the earth, 9-3391-96

* Flowerless plants, 10-3721-24

* Families of plants, 13-4871-76

* Plants of two worlds, 14-4973-80

* Roadside plants and weeds, 15-5387-96

See also Flowers

adaptation to dry places, 4-1281

annuals and seasons of year, 2-504

as food, 2-689

ballast plants, 14-4974

beauty of, 1-118

breathing of, 2-616

breeding of, *see* Plant-breeding

census of, 3-885

cultivated, how developed, 4-1337-88

GENERAL INDEX

Plants (continued)

- death of, inevitable, 2-510
- distribution of, 2-587
- effect of light on, 2-745
- first forms, 1-117
- five belts of vegetation on earth, 8-2667-68
- food of in air and earth, 1-330; 11-3975
- fresh-water plants, 4-1278
- growth, 2-743-45
- habitats of, 4-1280-81
- history (in chronological order)
 - at beginning of life on earth, 7-2415
 - Devonian period, 4-1176
 - in Secondary geologic era, 4-1401
 - Triassic period, 4-1402
 - Jurassic period, 5-1545
 - Cretaceous period, 5-1660
 - Eocene period, 5-1754
- in winter, 2-510, 685
- * life-history, 2-503-10
- life in, 1-50-52
- low forms blend with low animal forms, 1-117-18
- * medicinal, 8-2909-13; 5-1626
- movements of, 2-743-46; 1-118
- native American, 1-159-60
- new varieties, how started, 4-1390
- of the sea, 4-1276, 1278
- perennials, length of life, 2-504
- poisonous, food value in some, 5-1624
- protecting against cold, 5-1767
- reproduction, *see* Reproduction—plant
- seeds, how scattered, 3-1083-87
- seeds produced, number of, 4-1275
- self-defense, ways of, 1-334
- smallest flowering, 4-1278
- soil not needed by some, 4-1280; 7-2515-16
- strength of, 1-119-20
- tallest in the world, 9-3262
- use for clothing, 5-1626
- water-growing plants, 7-2515-16
- See also* Botany; Chlorophyll; Fertilizers; Fruit; Gardening; Nuts; Roots; Trees; Vegetables; also names of plants, fruits and flowers
- For full list of main articles, *see* 20-7599-7602
- Questions about
 - Are there flowering plants in the Antarctic? 17-6284
 - Can any plant grow under ice? 2-458
 - Can one plant produce thousands of seeds in a single season? 13-4826
 - Does a plant go to sleep? 2-685
 - Does electricity affect the growth of plants? 7-2609
 - How can a plant grow on a bare wall? 7-2611
 - How does seaweed tell us what the weather is going to be? 8-2718
 - How does the seed make the color of a plant? 14-5087
 - Is a leaf of a plant waterproof? 7-2360
 - Should we have plants in a sick-room? 6-2124
 - Where do plants get their salts from? 16-5710
 - Why are plants white when grown in the dark? 11-3842
 - Why are some plants poisonous? 14-5084
 - Why does manure make a plant grow faster? 10-3581
 - Why is seaweed used as a fertilizer? 2-587
 - Will a seed grow after thousands of years? 8-2718
- Pictures
 - How a plant melts its way through ice, 2-459
 - life-story of a buttercup, 2-508-09
 - parts of, magnified, 13-4672-78
 - showing development by cultivation, 4-1287, 1289
- * useful plants (in color), 8-2997-3000
- world map of food plants, 19-7247
- Plassey, Battle of, 8-2826
- Plaster of Paris ($\text{CaSO}_4 + 2\text{H}_2\text{O}$). A cement obtained by pulverization and dehydration of gypsum. It contains 48.6 per cent of sulphuric acid, 32.5 per cent of lime, and 20.9 per cent of water. When it is heated to between 250° and 400° Fahrenheit, gypsum loses three-quarters of its water, and in powdered form is called plaster of Paris. When water is added it will set in from 6 to 10 minutes, and retarders are used to delay the hardening. Used for hard-finish plaster for

Plaster of Paris (continued)

- walls and ceilings, in the construction of temporary buildings, in surgery for making casts, in dentistry for impressions from which plates are made.
- Plastering. The spreading of a composition having lime for its basis, while it is wet and plastic upon a wall or ceiling, by means of laths. Generally applied in two or three coats; the first, a coarse mortar of lime and sand with fibre, the second, lime and sand without hair, and the third, lime with fine sand, or lime, fine sand and plaster of Paris. Proportion of sand and lime varies, but it is generally 2 to 1.
- Platea, Battle of, 3-916
- account of, 3-1078
- Plate. Question about. Why does a wet plate get dry if left alone? 3-981
- Plateresque, decoration, definition, 18-6502
- Plates, experiments with, in study of sound, 19-6854
- Platinum (Pt). One of the precious metals, rarer than gold or silver. It is steel-gray in color and easily beaten into leaves or drawn out into wire. In cost it is worth from five to six times the price of gold. Russia has great platinum beds in the Urals. Platinum is found in small quantities in Canada and the United States.
- Plato, Greek philosopher
- * life and teachings, 16-5917-18, 5920
- follower of Socrates, 3-1081
- influence and genius, 2-707
- Picture, bronze head of Plato, 16-5914
- Platt, John James, *see* Poetry Index for poem and note
- Platt National Park, Oklahoma, 7-2291
- Platte Fougere, lighthouse at, 10-3476
- Platte River. An American river rising in the Sweetwater River, Wyoming, and flowing into the Missouri River, 1,260 miles.
- Platypus, animal, 7-2592-94
- Pictures, 7-2596
- Plautus, Titus Maccius, Roman dramatist, 16-5908-09
- Player pianos
 - air used for playing, 5-1797
 - Picture, with note, 5-1794
- Playfair, Sir Lyon, English scientist, 2-592
- Playgrounds
 - Chicago, 19-7122
 - N. Y. city, 15-5624
 - Pictures, in N. Y. city, 15-5625
- Plays for children
 - Bear and the little wolf, 18-6782-83
 - Robin Hood and his merry men, 19-7078-79
- Plays of Shakespeare, *see* Shakespeare
- Playthings, *see* Toys
- Plebeians, lower class of Rome
 - struggle with patricians, 4-1193
- Plebiscite. Popular vote on a definite political question, as when Louis Napoleon was elected prince-president of France in 1848. The word, from the Latin, means "decree of the people."
- Plebs, *see* Plebeians
- Pléiade, group in French literature, 18-6565
- Pleiades, constellation
 - in mythology, 9-8233
 - legend of, 6-1971
- Plein-air painting, 7-2476-82
- Plesiosaurus, prehistoric animal, 5-1546
- Pictures, 1-93; 4-1403; 5-1545
- Pleurisy. Inflammation of the pleura, the serous membrane inclosing the lung and covering the under-surface of the chest. The lung-covering and the chest-covering move against one another in breathing, but freely, because of a lubricating oil which is secreted. Pleurisy occurs after exposure to cold, following diseases of the lung, or as result of an injury. It may be marked by an effusion of fluid, which, if not absorbed, will have to be drawn off by artificial means. In dry pleurisy there is no effusion of fluid.
- Pliny, the Elder, Roman author, 16-5912
- notes about under and electric fish, 4-1243
- Picture, portrait, 16-5907
- Pliny, the Younger, Roman author, 16-5912-13
- Plough, constellation, *see* Great Bear
- Ploughs, *see* Plows
- Plover Family, birds, 11-4010
- Plovers, birds, 14-5020
- Picture, 11-4011

GENERAL INDEX

- Plovers** (*continued*)
Pictures (in color)
 golden plover, 8-2898
 Kentish plover, 9-3130
 ring plover, 9-3283
 upland plover, 13-4841
- Plowman, Piers**, 1-305
- Plows**
 improved forms, invention of, 19-7211
Pictures
 horse and machine plows, 5-1759
 in New South Wales, 7-2465
- Plumb-line**
Question about. Does a plumb-line always hang straight? 2-587
- Plumbing**. The pipes and fixtures in houses and buildings used to supply water, gas and heat. Formerly these fixtures were of lead; hence the name "plumber" for a worker in lead (Latin *plumbum*). To-day plated pipe, brass, copper, wrought-iron and lead are used.
- Plums**
 beach-plums, 14-5165
 Burbank's improvement of, 15-5385
 Burbank's stoneless, 4-1388
 developed from sloes, 12-4383
Question about. How does the stone get into the plum? 3-987
Picture, 6-2061
- Plush**. A cloth made of silk and cotton which has a long shaggy pile on the upper surface which is not, like that of velvet, clipped to a uniform length.
- Plutarch**. Greek historian; born, Chæronea, Bœotia, about A.D. 46; died there about A.D. 120; author of the *Lives*.
- Pluto**, god of the under-world, 9-3238
- Plymouth**. Port, naval station and fishing centre in Devonshire, England, at the mouth of the Plym. Plymouth Sound is a splendid anchorage, and it was from here that the Black Prince, Drake, Hawkins, Cook and the Mayflower sailed on their voyages, Drake having been mayor in 1585. Devonport is now part of Plymouth. Many trans-Atlantic liners land at Plymouth.
- Plymouth, Mass.**
 landing of Pilgrims, 2-548
 tercentenary pageant, 11-3911
- Pictures*
 Leyden St., 18-6827
 Leyden St. in 1621, 12-4446
 Plymouth Rock, with canopy, 2-542
 site of fort on Burial Hill, 18-6827
- Plymouth Colony**, Mass., growth, till joined to Massachusetts Bay Colony, 2-555
- Plymouth Company**, to colonize America, 2-544, 546
 grant, called New England, 2-582
 succeeded by New England Council, 2-548
- Plymouth Rocks**, breed of poultry, 12-4491-92, 4494
Picture (in color), facing 12-4492
- Pneumatics**. The branch of mechanics treating of the properties of gases, at rest or flowing, and of solids immersed in gases.
- Pneumonia**. A disease of the substance of the lung. There are two forms: lobar pneumonia, in the lobes of the lung, caused by the *Diplococcus pneumoniae*; and bronchopneumonia, which affects the mucous membrane lining the smaller bronchial tubes.
- Po River**, Italy, 13-4568
- Pocahontas** (1595-1617). Daughter of the Indian chief Powhatan, said to have saved the life of Captain John Smith. She was kidnapped by an English captain, and while a prisoner married John Rolfe. She went to England with her husband and died there.
 and John Smith, 14-4971
- Pochard**, duck, 11-3889
Pictures, 11-3887; (in color), 9-3132
- Poe, Edgar Allan**
 * life and writings, 13-4725-26
 * Gold-bug, summary and quotations, 5-1899-1904
See also Poetry Index, for poems and notes
Pictures
 portrait and note, 13-4724
 memorial to Poe, 5-1898
- Poetry**
 American, *see* American poetry
 English, *see* English poetry
 forms of, 1-99, 215-16, 223
- Poetry—forms of** (*continued*)
 blank verse
 characteristics, 1-100, 216
 used by Marlowe, 3-1124
 early forms, no rhyme or rhythm, 1-321
 four-foot metre, origin, 17-6265
 rhyme, 1-99, 100, 216
 Spenserian stanza, 3-1120
 how differs from prose, 1-99, 215
 * How to read poetry, 2-605
 * How to remember poetry, 2-735
 in Bible, 2-476
 Japanese, 15-5460-61
 origin
 in singing, 1-99
 in songs of bards, 1-321
 in spoken verse, 1-215
 * Our feelings in poetry, 4-1379
 Persian, 15-5463
 rhyme, varieties of, 1-99, 100, 216
 types of
 * Poetry for children, 3-843
 * Poetry of action, 3-1135
 * Poetry of common things, 4-1269
 * Poetry of nature, 4-1513
 * Poetry of youth and manhood, 3-1005
 value, 1-81
 * Poetry more precious than gold, 1-215-17
 * Why should we read poetry? 2-481
- Poetry goes back to the country**, * 6-2027-30
- Poets**
 * Song writers of the United States, 18-6509-15
 * Writers of famous songs, 10-3605-12
 mental qualities, 12-4183
- Poems about*
 Poet and King, by Eugene Field, 12-4476
 Poet and the Bird, by Mrs. E. B. Browning, 11-4033
 The Singer, by J. A. Symonds, 12-4476
 We are the Dreamers of Dreams, by Arthur O'Shaughnessy, 16-5709
See also English poetry; *also* names of poets.
 For poems, *see* Poetry Index
- Poets of a dull day**, * 4-1357-59
- Pogonia**, orchid, description, 18-6567
Picture, 18-6567
- Pogrom**. A word of Russian origin meaning "political massacre"; especially applied to organized attacks on Jews.
- Poi**, Hawaiian food, 15-5450
- Poincaré, Raymond** (1860-). French statesman and writer, became prime minister in 1912 and president in 1913. In 1917 he opened the Peace Conference in Paris. His office expired in February, 1919. He was president of Reparations Commission, but resigned as a protest against leniency to Germany, and carried on a violent press campaign against the policy of the Supreme Council and Lloyd George. In 1922 he was again prime minister, giving French policy a definitely Nationalist trend.
- Pointelin, Auguste Emmanuel**, French painter, 7-2372
- Pointers**, hunting dogs, 2-718
Picture (gravure), 2-714
- Poison**
 alcohol as, 8-2681-84
 not harmful to animal producing it, 3-877-78
 of caterpillars, 18-6528
 snake's, account of, 15-5410, 5412
 treatment for poisoning, 16-5981
- Questions about*
 What is meant by a poison? 4-1232
 What makes the poison in a snake's fang? 16-5842
 Why are some plants poisonous? 14-5084
- Poison-ivy**, 13-4781-82
Pictures, 13-4781
- Poison weed**, *see* Larkspurs
- Poisonous plants**. Plants which contain poisonous substances in sufficient amounts to make them harmful to the taste or touch of men or animals. Of those poisonous to the touch the poison sumac and ivy are notable; bittersweet, henbane and poke have poisonous seeds; wild cherry and larkspur have poisonous foliage.
- Poitiers, France**
Picture. tower of St. Porchaire church (gravure), 16-5722
- Poitiers, Battle of**
 Black Prince captured French king, 5-1682
- Poke**, Indian, plant, 18-6570, 6572

GENERAL INDEX

- Pola, Italy**
Picture, amphitheatre (gravure), 15-5356
- Poland**
 art revival, 13-4688
 * description, 13-4688-92
 education before partition, 13-4682
 government
 before partition, 13-4682
 present time, 13-4686, 4688
 * history, 13-4679-86
 history (arranged chronologically)
 adopted Christianity, 10th century, 13-4679
 Tartar invasion, 13-4680
 since 1916, 18-6460-61
 in World War, 13-4686
 independence after World War, 13-4686
 war against Bolsheviks, 13-4686
 industries, 13-4688
 literature, 13-4682, 4686, 4688
 map, 13-4685
 memorial earth mounds, 13-4690
 partitions of, 11-4049; 13-4682, 4684
 population, 5-1606
 religious freedom, 13-4680
 resources, 13-4688
 song, Poland's not a Slave Forever, 17-6256
Pictures, 13-4679-90
 troops after defeat of Turks, 17-6190
- Polar regions**, see Antarctic regions; Arctic regions; North Pole; South Pole
- Polaris**, ship, in arctic exploration, 13-4710
- Polarization** of electric batteries, 16-5673
- Poldhu**, The wireless station in Cornwall, England, from which the first wireless message was sent across the Atlantic on December 12, 1901. The message was simply the letter S, and was received by Marconi in Newfoundland.
- Pole, Reginald**, cardinal, mission to England, 5-1817
- Pole Star**
 and measuring the earth, 16-5742
 distance from earth, 11-3783
 finding one's way by, 11-3787-90
 made of three suns, 11-3926
- Polecats**, 3-872-73
Picture, 3-869
- Poles**, see North Pole; South Pole; Magnetic Poles
- Police**. That part of the administration which has to do with the preservation of peace and the prevention of crime. The first modern police force was the London Constabulary appointed in 1828. The system of organization differs in different cities, but the supreme authority is generally in a superintendent or a board.
 * Royal Canadian Mounted Police, 16-5831-38
 Polish, how to apply, 9-3119-20
- Political economy**, see Economics
- Political parties**. Organizations of citizens for the attainment of policies through united political action. To be found in all democratic countries, they are an accompaniment of popular government. In English-speaking countries the two-party system has been prevalent. In Latin races these parties are likely to split up into groups. Each of the great parties in England, Canada and the United States stands for certain principles. In Canada the Liberals and Conservatives practically hold the field, with the Progressives maintaining a somewhat precarious hold. In the United States the Democrats and Republicans form the great divisions.
- Polk, James K.**, president of U. S.
 administration, 6-1918; 11-3940
 life, outline of, 11-3952
Picture, portrait (gravure), 11-3947
- Poll tax**. A tax levied on all citizens of a given age and sex.
- Pollack**, fish, 16-5780
Picture (in color), 16-5784
- Pollen of flowers**, 2-506; 3-1013-14
 See also Flowers—fertilization
- Pollux**
Question about. Who were Castor and Pollux? 17-6288
- Polo, Marco**, Italian traveler
 and Jason, 2-563-64
 described Chinese coal, 3-785
 described petroleum, 13-4534
 explorations, 1-84-85
 first European to see the argali, 4-1375
 in central Asia, 18-6591-92
 visit to China, 2-429, 432
- Polotsky, Simcon**, Russian author, 19-6906
- Poltava**. Town of the Russian Ukraine, manufacturing leather and tobacco. Here in 1709 Peter the Great defeated Charles XII of Sweden.
- Polyanthus**, flower, description, 19-7171
Picture (gravure), 19-7178
- Polyclitus**, Greek sculptor
 * work and characteristics, 12-4215, 4218
 built theatre at Epidaurus, 15-5346
Pictures, statues modeled after (gravure), 12-4334
- Polygala**, Fringed, flower, 18-6568
- Polygamy** and Mormonism, 6-1920, 1922
- Polygnotus**, painter, ancient Greece, 2-451
- Polygon**. A figure, generally plane and closed, having many angles and hence many sides.
- Polyhymnia**, muse of the sublime hymn, 9-3228
- Polynesians**, king of Thebes
 quarrel with brother, 6-2008
- Polynesia**, part of Oceania
 governments owning islands, 9-3298
 islands included, 9-3296
 map, 9-3294
 natives, characteristics, 9-3298
- Polyphemus**, giant, and Ulysses, 6-1985-86
- Polypody**, ferns
Pictures (in color), 10-3726-27
- Pomelo**, name for grapefruit, 6-2058
- Pomerania**. Prussian province on the south shore of the Baltic. The ports of Stettin and Stralsund are its most important towns.
- Pomeranian dogs**. *Picture* (gravure), 2-711
- Pomeroy, F. W.**, British sculptor
Picture of statue, The Potter, 13-4853
- Pomona**, in Roman mythology, 9-3235
- Pompano**, fish, 16-5780
- Pompeii**, Italy, ruins of, 4-1200
 wall-paintings, 2-451
Pictures
 Courtyard of the House of the Vettii (gravure), 15-5356
 mosaic, Defeat of Darius, 2-709
 Temple of Jupiter, reconstruction, 15-5340
 wall-paintings, 2-452
- Pompey the Great**, Roman general
 * life, 4-1365-66
 and Cæsar, 4-1198-99
- Ponce de Leon**, in Porto Rico and Florida, 1-242
- Pond lilies**, see Water lilies
- Pondicherry**. Chief French settlement, on the Coromandel Coast, India.
- Pondweeds**, description, 4-1278
Picture, lake covered by, 9-3399
- Ponies**, in arctic exploration, 14-5096
- Ponies**, Shetland, see Shetland ponies
- Pont Neuf**, bridge in Paris
 built by Henry IV, 5-1873
- Pontchartrain**, Lake, 16-5660
- Pontgravy (François Gravy, Sieur du Pont)**
 attempted to establish Canadian trading-post, 1599, 2-679
- Fontiac**, Indian chief
 fight against English, 3-784
- Pontoon**. In military language, a wooden flat-bottomed boat or other float used in building bridges quickly for the passage of troops.
- Pony Express**, early mail service in West, 18-6432
- Pool**. *Question about*. Why does a pool stay or sand and not in a garden? 15-5362
- Poona**. Military and industrial centre in the Bombay Presidency, India.
- Poop** of a ship, 14-5004
- Poor laws**, English, attacked by Dickens in *Oliver Twist*, 8-2735
- Poor Richard's Almanac**, by Franklin, 12-4448-49
- Popcorn**, reason for exploding, 5-1856
- Popcorn balls**, recipe for, 1-340
- Pope**, head of Catholic church
 beginning of temporal power, 11-3960; 12-4408
 power of, in Middle Ages, 8-2846-50
 See also Church; Church and state; also names of popes
- Pope, Alexander**, life and work, 4-1359
Picture, portrait, 4-1357
- Popgun**
 from elder branch, how to make, 9-3254
 quill, how to make, 15-5337
Question about. Why does a popgun go pop? 13-4593-94

GENERAL INDEX

Poplar trees

catkins of, 17-6273
description, with pictures, 11-4098-99

Popocatepetl, volcano

height of, 7-2313
Picture, 19-7131

Poppies

European, 11-4020
horned poppy, 14-5158-60
opium poppy, account of, 8-2912
prickly poppy, description, 18-6656
scarlet poppy, 17-6127, 6131
varieties developed by Burbank, 15-5384

Poems about

In Flanders Fields, by John McCrae, 16-5924
Miss Poppy, by F. E. Weatherly, 6-2244

Pictures

horned poppy, 14-5159
opium poppy, 8-2913
scarlet poppy, 17-6127
Shirley poppy (gravure) 19-7179

Pictures (in color)

fruit, 11-4026
opium poppy, 8-2999
red poppy, 15-5397
yellow horn poppy, 14-4982

Poppy Family, in botany, 13-4872

Poppy oil, use of, 8-2912

Population

Questions about

Is the population of the world still growing? 5-1606

Which is the biggest nation? 5-1605

See also names of countries under subhead "population," as, China—population.

Populist Party, or People's Party. Organized at Cincinnati in 1891 by a national convention made up of representatives of the agricultural and industrial classes. It nominated candidates for the presidency of the United States, carried several state legislatures, and elected many members of Congress; declined after 1900. in Cleveland's administration, 8-2672

Porcelain, see Pottery

Porcupines, 3-1134

Pictures, 3-1130-31

Porgy Family, fish, 16-5780

Picture, (in color) 16-5785

Porpoise

account of, 6-2218
description of, for game, 8-2880, 3023
Picture, 6-2219

Port, meaning of term for side of ship, 14-5003

Port au Prince. Capital and seaport of Haiti, with a cathedral, a fine harbor, and exports of hides, coffee and logwood.

founding of, 19-7100

Port Louis, capital of Mauritius, 9-3184

Port of entry. A point that may be designated by the customs administration for the unloading of foreign goods. At first ports of entry were always on the frontier and generally on the seaboard. When shipment in bond went into effect any city might be so named.

Port of Spain, capital of Trinidad, 9-3190

Picture, cathedral, 9-3183

Port Royal, Nova Scotia

founded, 2-679
named Annapolis, 3-779
pillaged by English, 1613, 2-682

Port Royal, S. C. Huguenot colony, 1-246

Port Said. Egyptian port and coaling station at the north entrance to the Suez Canal. It was founded in 1859. On the western breakwater is a statue of de Lesseps, builder of the canal.

Port Sudan. Sudanese import and export centre, being the Red Sea terminus of the railway from Atbara Junction.

Porter, Jane, English novelist

* Scottish Chiefs, quotations and summary, 12-4319-26

Porter, William Sidney, see Henry, O.

Portland. The chief port of the state of Maine; it has a large tourist traffic as well as extensive freight tonnage by rail and water.

Portland. Largest city and port of Oregon, with lumber-mills, foundries and canneries. Built on slopes rising into tree-clad mountainsides, with ranges in the distance. The region round is rich in timber, fruit and minerals.

account of, 19-6816
situation, 8-2675

Picture, bridge over Willamette River, 8-2675

Portland cement, how made, 7-2305

Porto Rico. Fertile West Indian island under American administration; area, 3,600 square miles; capital, San Juan. Sugar, coffee, rice, corn, tobacco and bananas are abundantly produced.

account of, 10-3592, 3596; 19-7101
taken by U. S. in Spanish-American War, 10-3590

Pictures, 10-3593, 3596

Portraits

painting of, see Painting—of portraits
silhouettes, how to make, 19-7077

Question about. Why do some faces in pictures seem to follow us? 8-2718

Pictures

by British artists, 6-2002-03, 2005, 2112; (gravure), 6-2113-20; (in color), 7-2337-40
by Canadian artists, 10-3703, 3709

by Dutch and Flemish artists, 4-1223-24, 1228; 5-1584, 1587, 1589, 1713-16

by French artists, 6-2076, 2078-79; (gravure) 5-1877-80

by German artists, 4-1346-47; (gravure) 4-1349-52

by Italian artists, 3-825-27, 829, 1105; (gravure) 3-961-64, 1109-12

by U. S. artists, 3-969, 971; 9-3324, 3326-29; 10-3446; 13-4729, 4821; (gravure), 10-3460-61

by Velasquez (gravure) 4-1501-04
Great figures in Tudor days (gravure), 5-1821-24

See also articles on painting grouped by national adjectives as Painting, American; Painting, British

Portsmouth. Chief British naval station, with a naval dockyard covering 300 acres. Standing on a land-locked harbor, in Hampshire, it has been important since the 16th century, and has a large trade. Its Southsea suburb is a popular resort. There is a Roman Catholic cathedral.

Portsmouth, seaport of New Hampshire

Picture, Langdon house, 12-4154

Portsmouth, Treaty of, 1905, 2-566

Portugal

agriculture, 14-5188

cities, 14-5188

climate, 14-5188

colonial possessions, 14-5188

Brazil, settlement and early history, 19-7040, 7042

in Africa, 18-6814

early trade

in China, 2-432

in Japan, 2-564

exploration and colonization, 14-5184, 5186, 5188

early explorations in America, 2-671

* history, 14-5183-88

republic established, 14-5188

literature, 19-7130

map, 14-5041

national hymn, 17-6254

Papal Line of Demarcation, 1-252; 14-5186; 19-7040

population, 14-5183

rivers, 14-5188

trade, early, with India, 8-2824

Pictures, 14-5189-91

Portuguese East Africa. Territory administered by the State and the Nyasa and Mozambique Companies, and producing sugar, nuts, ivory, copra, rubber and wax. Mozambique, Quillimane, Beira, and Lorenzo Marques, the capital, are the chief ports.

See also 18-6814

Portuguese man-of-war, a jellyfish, 19-7065

Porus, Indian ruler, and Alexander the Great, 8-2822

Poseidon, god of the sea, 9-2225

Posen, or Poznan. Ancient Polish cathedral city on the Warthe, making agricultural implements and furniture.

Position, Sense of, effect of sensations of skin, 4-1420

Positivism, system of thought, first taught by Comte, 7-2609; 18-6716-17

Post general, same, 8-2745

Post-impressionism, 8-2710-14

Post office, see Postal service

Postage stamps

air-mail, 16-5538

GENERAL INDEX

Postage stamps (continued)

- collecting, 14-5111-12
- recent stamps, 16-5887-88
- first use, by British post office, 6-2251
- foreign, 16-5887-88
- how cancelled, 8-2654
- use suggested by Rowland Hill, 8-2653
- Questions about*
- Why can we not send a letter without a stamp on it? 9-3355
- Why has a postage stamp a perforated edge? 6-2251

Pictures, rare stamps, 14-5111-12
Postal savings banks. Banks established by various governments through the Post Office Department. First introduced into England in 1861, they have been established in every country. Besides receiving deposits upon which they pay interest they provide annuities and write life insurance, and serve as agents in purchasing government securities.

Postal service

- by airplane, 8-2658
- English, effect of penny post, 7-2293
- * How our letters come to us, 8-2653-58
- in West, early days, 18-6432
- money, how sent, 8-2658
- sorting on trains, 8-2656-57
- See also Postage stamps

* Pictures

- mail sorting and delivery, 8-2653-62
- Uganda postman, 9-3047

Posting, game, 12-4496

Postmen, duties of, 8-2654-55

Posture, game, directions for playing, 4-1400

Pot-hole, notes and pictures, 6-2075

Purifies air for divers, 12-4186-87

Pot pourri. French term for a piece of music or a song in which each couplet refers to different things. The English apply the words to a sweet-smelling mixture of dried flowers.

Potash, uses, 13-4550

Potassium, specific gravity, 14-5038

Potassium salts, in seaweed, 2-587

Potato animal contest, game, 3-1003

Potato Family, plants belonging to, 9-3156

Potatoes

- * account of, and related plants, 7-2618, 2623-24
- as food, 5-1624
- Burbank variety, 15-5382
- damage from Colorado beetle, 18-6732
- experiments on, 3-1154
- first in Ireland grown by Raleigh, 14-4967
- fungus, life story with pictures, 7-2617
- introduced into England by Hawkins, 14-4960
- life story of, with pictures, 7-2615
- New York and Maine lead states in production, 10-3406
- United States crop of, 8-2679

Questions about

- Why does a potato not rot under the earth while it is growing? 18-6554
- Why is it good to boil potatoes in their jackets? 8-2872

Potatoes, Sweet, 7-2624

Picture, plant and tuber (in color), 8-2997

Potiphar. Pharaoh's officer, master of Joseph in Egypt.

Potomac. American river rising in West Virginia and flowing past Washington into Chesapeake Bay. 400 miles.

Potosi. Cathedral city of Bolivia, standing nearly 14,000 feet above sea-level, near famous silver-mines.

Potadam. Suburb of Berlin containing the former residence of the Prussian kings. Here also are the Brandenburg Gate and Frederick the Great's palace of Sans Souci.

Pictures

New Palace, 11-4043

Sans Souci Palace, 11-4047

Potter, Edward C., American sculptor, 14-4938, 4940

Potter, Paul, Dutch painter, 5-1592

Potter's wheel, description, 5-1666

Pottery

- * How china cups and saucers are made, 5-1662-72
- directions
- for casting dishes in plaster, 7-2511-12
- for making dishes of clay, 14-5199-5200
- for mending, 13-4737
- French manufacture of, 11-3818

Pottery (continued)

- history, 5-1663-64, 1666
- in ancient Crete, 2-448
- Question about.* What are the brown specks in china? 2-689

Pictures

Cretan vases, 1660 B.C.-1500 B.C., 2-448

Japanese industry, 2-571

* showing manufacture, 5-1662-72

willow-pattern plate, with story, 4-1532

Zuni woman making pottery, 19-7241

Poulsen, Valdemar, and wireless telephony, 17-6217, 6268

Picture, portrait, 17-6235

Poultry

* Our domestic poultry, 12-4491-94

origin, jungle fowl, 12-4366

poultry industry in U. S., 9-3208

poultry-keeping as a hobby, 15-5512-13

varieties of, 12-4492, 4494

Questions about

- Does a hen know that chickens will come out of her eggs? 12-4281
- Is the white of the egg part of the chicken? 8-2871-72

Pictures, 12-4491-94; (in color), facing 12-4492-93

Pounce, ground cuttlefish bone, 16-5898

Pound, made with fish nets, 11-4052

Pounds, John, teacher of poor children, 17-6140

Pourpre, Marc, French aviator, 17-6293-94

Poussin, Nicholas, French painter, 5-1874, 1876

Pictures

Passer of the Seasons, 11-4131

Shepherds of Arcadia, 5-1875

Poverty in England, 19th century, 7-2294

Powder River. American river, rising in the Big Horn Mountains, Wyoming; flows into the Yellowstone River. 400 miles.

Powell, John Wesley, explored Colorado River, 7-2294

Powell River, British Columbia

Picture, plant of the Powell River Paper Company, 7-2452

Power

definition of term, in physics, 2-689

hydraulic, 14-5221

measurement, by "horse power," 2-689

wave transmission, 14-5221

See also Water power

Question about. How is power carried to a distance? 14-5221

Power of attorney. A legal instrument authorizing the person named to act as the attorney for the person signing it. A general power of attorney gives authority to act without limitation. A special power limits it to the acts specified.

Power transmission, Electric, see Electric power distribution

Powers, Hiram, American sculptor, 14-4934

Powers, Great. A term used for the most powerful nations of the world, as Great Britain, the United States, France, Italy, Japan.

Poynings, Sir Edward, and Irish laws, 8-2935-36

Poynter, Sir Edward John, British painter

Picture, Helena and Hermia in the garden, 3-835

Poznan, Poland, 13-4692

Pictures

castle, 13-4689

Town Hall, 13-4681

Prætorian guard. Personal bodyguard raised by Augustus Caesar.

Prague. Capital and commercial centre of Czechoslovakia, on the Bohemian Moldau. Ancient and picturesque, it contains many medieval buildings, and has a university and an unfinished 14th-century cathedral. Manufactures include machinery, chemicals, linen and cotton.

Pictures, 17-6043

Prairie chicken, variety of grouse, 12-4364

Picture (in color), 10-3621

Prairie-dog, 3-1132

Prairie hen, variety of grouse, 12-4364

Prairie-marmots. Picture, 3-1131

Prairie smoke, see Pasque flower

Prairie wolves, see Coyotes

Pratincoles, birds, 11-4000

Pratt, Bela L., decorations in Library of Congress, 5-1336

Pratt, Edwin J., Canadian poet, 14-5109

Pratt, Matthew, American painter, 9-3327

GENERAL INDEX

- Prawns**, description, 16-5956
- Praxiteles**, Greek sculptor, 12-4328-30
- Pictures*
head of Aphrodite of Cnidus, 12-4329
various statues (graveure), 12-4335
- Prayer**
Book of Common Prayer, 1-306
story about, King who could not sleep, 5-1577-78
- Poetry*
As down in the Sunless Retreats, by Thomas Moore, 6-2035
Before Action, by W. N. Hodgson, 10-3738
Boy and the Angel, by Robert Browning, 13-4741
Child's Evening Prayer, by S. T. Coleridge, 2-485
Child's Evening Prayer, by A. P. Graves, 2-611
Here a Little Child I Stand, by Robert Herrick, 2-488
Jesus, Tender Shepherd, by M. L. Duncan, 13-4742
Miserere Domine, by J. G. Saxe, 13-4600
A Prayer, by Robert Southey, 7-2364
Prayers, by H. C. Beeching, 10-3739
See also Hymns
- Prayer-shop**, Buddhist. *Picture*, 2-569
- Precedent**, in law, 13-4811-12
- Precious stones**
* history and description, 19-7225-34
quartz forms, 3-774
Pictures (in color), facing 19-7225
- Predis**, Ambrogio de (Preda), pupil of Leonardo da Vinci, 3-830
- Preece**, Sir William, and Marconi, 17-6247
Picture, portrait, 17-6235
- Prehistoric animals**, *see* Animals—history
- Prehistoric man**, *see* Man, Prehistoric and primitive
- Premier**. The first minister of state, the prime or premier minister.
- Preposition**. Indeclinable word showing the relation of a noun or pronoun to some other word in the sentence.
- Pre-Raphaelite Brothers**, ideals and influence, 6-2235-36
- Prescott**, William Hickling, American historian, 13-4820
- Presidents of U. S.**, *see* United States—Presidents
- Presidential Succession Act**, 20-7570
- Press**. The art of printing; hence those who are engaged in printing and publishing, and particularly applied to newspapers and other periodical publications.
- Pressburg**, or Bratislava. Danube port and ancient cathedral city of Czechoslovakia.
capital of Slovakia, 17-6342
Picture, 17-6343
- Pressure**, sense of, in skin, 4-1420
- Pretender**, the Old, *see* Stuart, James Francis
- Pretender**, the Young, *see* Stuart, Charles Edward
- Pretoria**. Capital of Transvaal and of the Union of South Africa. It is finely built, and has a cathedral. Diamonds are mined near by.
Picture, 9-3053
- Prevati**, Italian painter, 8-2854
- Priapus**, in mythology, 9-3237
- Price**
explanation of, in economics, 16-5681, 5933-34
relation to money in circulation, 16-5681-82
relation to supply and demand, 16-5934-36
- Prickly-pear**
account of, 9-3268; 18-6660
in Australia, 4-1276
Pictures, 9-3264-65; 18-6655
- Priestley**, Joseph, English chemist, 16-5804
- Priestman**, Bertram, English painter, 8-2860
- Primary Election**. Elections held either to choose delegates to nominating conventions, or else to choose a candidate directly. Generally only party members are entitled to vote in the primaries, though in some states the non-partisan primary is in use and the whole electorate may take part in selecting candidates. Primary elections have been regulated by law only since about 1900. By 1915 the direct primary had come to be almost universal in selecting either state or local nominees, or both, throughout the United States.
- Primate**. A title in some of the Christian churches applied to a bishop, because he is first
- Primate** (continued)
in a province or group of provinces. In England the Archbishop is primate of all England. The title of primate is also given to several bishops of the Church of England in a number of the British colonies.
- Primates**, *see* Apes; Monkeys; Lemurs
- Primitive man**, *see* Man, Prehistoric and primitive
- Primitives** (early type of Renaissance painting) in Italy, 2-691-99
- Primogeniture**, definition, 15-5519
- Primrose**, flower, description, 17-6124, 6128
bird's-eye, or mealy, 16-5731-32, 5734
evening primrose, 18-6656
experiments on, by De Vries, 4-1390
note on, 17-6126
Pictures, 17-6126
bird's-eye, 16-5731
English primrose (in color), 13-4880
evening primrose, 18-6654
showing variations of evening primrose, 4-1389
- Primrose Family**, in botany, 13-4875
- Primus berry**, how developed, 4-1388
- Prince**. A title first applied to senators of the Roman State, and later applied to persons having kingly power. In some parts of Europe the title "prince" is in use, but not that of king. In England the word is practically limited to members of the royal family, though by the laws of heraldry a duke has the right to be so styled.
- Prince Edward Island**. Island province of eastern Canada; area, 2,184 square miles; capital, Charlottetown. Silver fox breeding is important, there being more than 300 fur farms.
fur-farming, 13-4693-94
history, 1763-99, 3-944
joined Dominion of Canada, 4-1490
- Prince Hal**, nickname for Henry V, of England, 5-1684
- Prince of Wales**, *see* Wales, Prince of
- Prince of Wales, Cape**
named by Captain Cook, 8-2984
- Principes**, title used by Augustus, 4-1199
- Princes in the Tower**, story of, 1-147-49
- Princess**, *see* Strange Adventures of, by Chaucer, 13-4769
- Princeton University**
beginnings of, 12-4308
note on, 12-4311
Picture
Holder Hall, 12-4311
(graveure), 18-6687
- Pringle**, C. G., developed varieties of wheat, 4-1470
- Pringle**, Thomas, *see* Poetry Index for poem and note
- Prinsep**, Valentine Cameron, British painter
Picture, At the Golden Gate (graveure) 6-2240
- Printing**
* Men who gave us printing, 9-3381-90
censorship of, 9-3389
description, with pictures, 3-1063, 1066
first book printed in English, 9-3386
in China, early mention, 2-429
invention
Chinese invention of movable types, earliest known printing, 15-5460
first invention uncertain, 9-3381-82
letters for first type, 10-3548
of pictures, 3-1065; 9-3390
blue-print, or sepia-print, 15-5331-32
one cause of Renaissance, 17-6297
See also main articles, 20-7635
- Printing**, lettering, 15-5596-97
- Printing**, Block, *see* Wood-block printing
- Printing-press**, history of improvement, 9-3389-90
types, various kinds introduced, 9-3388
See also Types
Pictures, 3-1063, 1066
about early printers, 9-3385, 3387
first cylinder press, König's, 9-3388
- Prionodura**, bird, arranges bower, 8-2896
- Prism**
and rainbow colors, 8-2742, 2881
breaks up light into colors, 11-3922
how colors are bent, 16-5810-11
- Prisoner's base**, game, 3-1153
- Prisoners of war**. Formerly the property of their captors, who might do with them as they wished. Ransom helped matters a little, and humane

GENERAL INDEX

Prisoners of war (continued)

feeling to-day has materially bettered the lot of such prisoners, who are classed as lawful combatants. Though the prisoner of war has no protection against the laws of the state, he is protected by the international laws, first laid down by the Brussels Conference in 1874, against injury to his person.

Prisons. Originally looked upon as houses of detention only, such as the Tower of London, the Bastille in Paris, but since the early 17th century used as places for the punishment of crime. At first conditions were very bad, but the reform movement led by John Howard brought about many improvements as regards the housing of prisoners, etc., and prisons began to be looked upon as a possible means of reformation. Prisons include lock-ups, jails and prisons proper, as well as reformatories for younger delinquents.

Privateers, definition, 4-1170

in American Civil War, 7-2438

in American Revolution, 4-1170; 17-6325

Privet, bush, 11-4019

Picture, fruit (in color) 11-4021

Privy council. In the United Kingdom, a body of persons forming the private advisers of the British sovereign. Such a council dates back to very early times. At the present day it consists of men of distinction, but its duties are now largely taken over by the Cabinet.

Probate. In law, the official proof or establishment of wills and testaments.

Problems, arithmetical and miscellaneous,

2-751; 3-899; 3-1151; 4-1284; 6-2166

horseshoe card, 14-5202

How did the farmer enlarge the fold? 16-5765

How did the father divide his garden?

7-2380

traveler's dinner, 13-4622

See also Puzzles

For list, see 20-7642-44

Procter, Adelaide Anne, poetry of, 12-4232

wrote *The Lost Chord*, 10-3611

See also Poetry Index for poem and note

Procter, Bryan Waller, *see* Cornwall, Barry, in Poetry Index for poems and notes

Proctor, Alexander Phimister, Canadian sculptor, 14-5075-76

Procyon, star, composition of, 11-3924

Producer, in economics, definition of the term, 15-5590

Profit

affected by supply and demand, 17-6094

relation to interest, 17-6093

Progressive games, *see* Games—progressive

Progressive party, U. S., in 1912, 8-2672; 19-7198

Projectiles. Objects thrown forward by an impulse of short duration; in early days stones were thrown from the hand; with guns came the use of stone bullets, then iron. An elongated heavy projectile was found to overcome the resistance of the air best. When smooth-bore guns were in use there were many kinds of projectiles—solid shot, hot shot, bar shot, chain shot, shell, shrapnel, etc. To-day, with rifled bores, projectiles are of three kinds—armor-piercing shell, common-shell and shrapnel. There are, besides, special air projectiles, hand grenades, illuminating shells and bombs.

Prometheus, the Titan who stole fire from Olympus for man, 9-3228
and Pandora, 9-3233; 14-5259

Promissory note. A written instrument containing an unconditional promise to pay a certain sum of money on demand or at a fixed future time. If made payable to payee or bearer, it can be transferred to another. If the payee is named, his endorsement is necessary to its negotiation.

Prongbuck, animal, 4-1444

Picture, 4-1445

Pronoun. A word which stands instead of a noun. There are personal pronouns, as *I, we, he*; reflexive pronouns, as *ourselves, himself*; demonstrative, as *this, that*; interrogative, as *who? which? what?*; relative, as *who, which, what*.

Pronunciation

in speaking and singing, 10-3559-61

of Hindu words, 8-2698, 2700

See also Consonants

Propheys, Biblical, as statesmen and orators, 2-476

Proportion. In mathematics, the equality of ratios. The ratio of 12 to 3 is equal to the ratio of 8 to 2, so that $12:3=8:2$ is a proportion. If one quantity varies directly as another, the two are *directly* proportional. If one quantity varies inversely as another, the two are *inversely* proportional.

in architecture, 15-5341-42

Proportional representation. A system of voting designed to secure that the various political opinions of the electorate shall be fairly represented in the body of persons elected. The basis of the system is the transferable vote, each elector being allowed to vote for more than one candidate in order of preference, surplus votes being divided.

Proserpina, in mythology, 9-3238

Prospero, character in *The Tempest*, 3-986

Protective coloration, *see* Adaptation to environment

Protectorate. A relation established by treaty between a stronger and a weaker state, in which the weaker state is protected from hostile dictation and invasion in return for a more or less surrender of its internal control.

Proteins

best sources of, 7-2569

digestion of, 6-2085

use as foods, 6-2187-88

Protesilaus, Greek hero, story of, 8-2820

Protestants, origin of name, 11-3964

Proteus, a sea god, 9-3235

Prothalamion, poem by Spenser, 3-1120

Prothallium, in life history of fern, 4-1232

Proton, hydrogen nucleus, 12-4291

Protoplasm

* living matter, 2-663-64

effect of poisons on, 4-1232

memory a property of, 11-4067

use of oxygen, 4-1325

Protozoa. The single-celled animals whose bodies are composed of protoplasm. They are microscopic in size, reproduce by self-division, are sometimes naked, sometimes clothed with a calcareous shell. The ameba and infusoria are typical. They can absorb and digest food, can move by contraction, or by little hairs, or muscles. They occur rarely on land, generally in still, fresh and salt water.

Provence. Beautiful old French province bordering the Mediterranean. The Greeks early established a settlement at Massilia, the modern Marseilles, and later Provence was for centuries under Roman rule, there being splendid Roman remains at Arles, Orange and Fréjus. Aix is celebrated for its Roman baths, while Avignon was once the seat of the French popes; Marseilles and Toulon are the chief French Mediterranean ports.

early literature, 17-6149

Proverbs, games, 15-5598

Providence, Capital of Rhode Island, making jewelry, textiles and machinery. A cathedral and university city, it is also a great port.

founding of, 2-550

Proxima Centauri, star, 11-3784

Proxy. The agency of one person acting for another, usually in public bodies.

Prudhon, Pierre Paul, French painter, 6-2080

Prunes, account of, 6-2064

Prussia. Largest state of Germany, occupying nearly the whole of the north of the country. Originally consisting only of East Prussia and Brandenburg, its dominions grew rapidly, and it now includes the great provinces of Silesia, Pomerania, Schleswig-Holstein, Rhenish Prussia, Hanover and Westphalia, with part of Saxony. Its capital is Berlin. Area, 113,157 square miles.

characteristics of people, 12-4164

growth under Bismarck, 11-3970, 3972

history

* under Frederick the Great, 11-1043-49, 3966

in Napoleonic Wars, 6-2205-08

Prussic acid, from bitter almond, 6-2275-76

in cherry pits, 13-1778

Przvalski, Nicholas, and early horse, 6-2012

Psalms, Biblical

19th psalm, verse form by Addison, 13-4600

23d psalm, verse form by Addison, 2-486

Psyche and Cupid, 9-3228

Picture (terracotta), 9-3229

Psychology, *see* Mind

GENERAL INDEX

- Ptarmigan**, bird
account of, 12-4363-64
found in very cold regions, 7-2560
molts often, 8-2760
Picture (in color), 9-3284
- Pteridophytes**, group of plants, 10-3724
- Pterodactyl**, prehistoric animal
description of, 2-634; 5-1546
Pictures, 1-93; 5-1659
- Ptolemies**, Egyptian kings, 3-821
- Ptolemy, Claudius Ptolemaeus**, astronomer
theory of earth as centre of universe, 1-202
Picture, portrait, 1-201
- Public health**, and milk inspection, 7-2326
child hygiene, N. Y. city, 15-5622, 5626
- Public utilities**. A term used to denote a service which supplies for profit certain wants of the public, such as the use of routes by land, water or air. Included are: the use of steam and electric railways, water transportation, express service, telegraph and telephone, light, heat and power, and public water supply.
- Publius Decius Mus**, see Decius Mus, Publius
- Puccini, Giacomo**, Italian musical composer, 19-6925
Picture, portrait, 19-6912
- Pucelle, La**. Old French name for Joan of Arc, meaning "the Maid." In Shakespeare's Henry VI, Part I, she is called Joan la Pucelle.
- Pudding-stone**, rock, 17-6386
- Pueblo Indians**
account of, 1-160-61
of Arizona, 9-3028, 3030
Pictures, 9-3029
typical home, 19-7237
village, 9-3027
- Puech, Denys**, sculptor, story of, 16-6031
- Puff adder**, snake, 15-5414, 5416
- Puffballs**, edible mushrooms, 10-3723; 11-3908
- Puffbirds**, 9-3365
Picture (in color), 10-3624
- Puffin**, bird, 11-4126
Pictures, 8-2759; 11-4125; (in color), 8-2900
- Pug-dog**. *Picture* (gravure), 2-715
- Puget, Pierre**, French sculptor, 13-4702
- Puget Sound**, note and picture, 18-6431
surrounding country, 19-6846
- Pul**, see Tigliath Pileser III
- Pulaski, Casimir, Count** (1748-79). Polish-American soldier. After taking part in an insurrection he escaped from Poland and entered the American army in 1777; killed in attack on Savannah, 1779.
- Pulaski, Edward C.**, saved lives in forest fire in Coeur d'Alene, 8-2808
- Pull of the earth**, * 14-5177-81
- Pullman, George M.**, invented sleeping car, 19-7212
contractor in Chicago, 19-7110
- Pullman sleeping car**. *Picture*, 2-415
- Pulmotor**. A mechanical device for carrying on prolonged artificial respiration. Used for victims of electric shock, drowning, asphyxiation, and for the resuscitation of newborn infants. The chief types are: the pulmotor when inspired air contains 60 per cent oxygen; the Brat apparatus using pure oxygen; the lung motor; and the salvator.
- Pulp**, for paper
chemical, 7-2448
* manufacture of, 7-2445-50
mechanical, 7-2446
See also Lumber and lumbering; Wood
- Pulse**, beating of arteries
cause of, 4-1210
- Puma**, animal, 2-501
Picture (gravure), 2-500
- Pumice-stone**
Question about. Where does pumice-stone come from? 9-3100
- Pump**, worked by atmospheric pressure, 15-5289
- Pumpkin-seed**, sunfish, 15-5630
- Pumpkins**. *Pictures*, 7-2621
- Punctuation marks**
amusing mistakes and changes, 19-7080
- Punic Wars**, between Carthage and Rome, 4-1194-96
- Punishments** in American schools, colonial period, 3-968
- Punjab**. Indian northern province in the plain of the Indus; area, 100,000 square miles; capital, Lahore. The rainfall is scanty, but by means of irrigation canals vast crops of cereals, cot-
- Punjab (continued)**
ton, oil-seeds and sugar are produced, while rock-salt is a great source of wealth. More than half the people are Moslems, and more than a third Hindus, the Sikhs numbering about 3,000,000. Amritsar, Ambala, Simla and Multan are among the towns.
description of, 8-2696
meaning of word, 8-2822
- Punt**, ancient African land, 11-3910
- Pupil of the eye**, 10-3684-85
Question about. What makes the pupil of the eye grow larger and smaller? 14-5218
- Pupin, Michael Idvorsky**
life, and electrical invention, 17-6247
- Purbeck marble**, use in sculpture, 13-4853
- Pure-Food Laws**. Laws passed by the Congress of the U. S. in June, 1906, prohibiting adulteration, misrepresentation, and the misuse of preservatives in the preparation of foodstuffs and drugs. The law is administered by the U. S. Department of Agriculture, aided by the Treasury Department and the departments of Commerce and Labor.
- Puritans**
characteristics in Cromwell's time, 6-1979
in American colonies, 2-548
in England, 2-546
See also Pilgrim Fathers
- Purling**, directions for, 13-4851
- Purslane**, flower
Picture, sea purslane (in color), 14-4981
- Pushkin, Alexander**, Russian author, 19-6907-08
Picture, portrait, 19-6905
- Puss in Boots**, fairy tale, 10-3441
- Puss in the corner**, game, 8-2743
- Pussy toes**, flower
Picture (in color), 15-5610
- Pussy willow**, description, 17-6273
- Putnam, Israel** (1718-90). American soldier, born in Massachusetts, but a resident of Connecticut. He served in French and Indian War, Pontiac's War, and in Revolution.
at Bunker Hill, 4-1164
Picture, portrait and note, 4-1165
- Putrefaction**. The decomposition, by the agency of bacteria, of organic matter, especially proteins, with the formation of ill-smelling products.
- Putty**. A kind of cement, usually of whiting and boiled linseed oil, beaten to the consistency of dough, and used in fastening glass in sashes, for stopping crevices and so on.
- Puvis de Chavannes, Pierre**, French painter
work and characteristics, 7-2482
Pictures
Bishop and St. Genevieve, 7-2478
panels in Boston Public Library, 7-2481
portion of wall-painting, 7-2475
Shepherd's Song, 7-2478
- Puzzle-pictures**, 5-1654; 11-3860
about a room, 4-1282
about a steamer, 12-4268
about English history, 2-754
about names of plants, 18-6646
- Puzzles**
arranging matches or toothpicks, 2-624
how the ladies cut the carpet, 2-751
Jacob's ladder, 18-6781
jester's escape from prison, 4-1286
king's guard, 16-5892
magic square, 6-2166
maze, 17-6258
miller's sacks, 4-1286
mysterious square, 18-6780
of wizard king, 18-6521-22, 6640
rhymes and verses, 15-5511
secret lock, 8-2741
trees in the park, 13-4620
with paper and scissors, 15-5337
See also Tricks; Problems
For list, see 20-7642-44
- Pycnogonida**, spider-like creatures, 16-6014-15
- Pydna, Battle of**, 4-1196
- Pyle, Howard**, author, 14-5015
Fruit of Happiness, (story), 11-3832-36
- Pylons**, in Egyptian architecture, 14-5212
Pictures, (gravure) 15-5213, 5215-16
- Pym, John**, leader against Charles I, 6-1976
opposition to Charles I, 11-3850
Picture, portrait, 11-3845
- Pyonson, Richard**, printer, 9-3388
- Pyramids**, game with marbles, 17-6389

GENERAL INDEX

Pyramids of Egypt

- account of, 7-2604; 14-5211
- * description, and account of building, 3-808-09
- Pyramid of Cheops, 14-5211
- Pictures*, 3-811
- 2d pyramid, Gizeh; step pyramid, Sakkara, 14-5214
- pyramid of Cheops (gravure) 7-2606

Pyrenees Mts., 14-5039-40

Picture, 7-2317

Pyrethrum. *Picture*, flower (gravure) 19-7175

Pyrite (FeS₂). An iron disulphid that crystallizes in the isometric system. It is of a brass-yellow color with a metallic lustre, and occurs in rocks of every age and kind. Pyrite is used chiefly in the making of sulphuric acid and green vitriol.

Pyrola, plant, note and picture, 16-5879

Pyrotechnics, making of fireworks, 13-4825

Pyrrhic victory

Question about. What is a Pyrrhic victory? 17-6290

Pyrrhus, king of Epirus

victory of, 17-6290

war with Rome, 4-1194

Pythagoras, Greek philosopher, 2-701

Pytheas, sailor and geographer, 3-1072

Pythias and Damon, story of, 9-3064

Pythius, architect of Mausoleum at Halicarnassus, 12-4332

Fythons, snakes, 15-5412

Picture, 15-5413



Quagga, animal, 6-2018

Picture, 6-2017

Quail, bird

account of, 12-4365; 13-4760

in western North America, 14-5134-35

Pictures

California, or valley quail, 14-5135

mountain quail, 14-5135

Pictures (in color) 13-4841

California mountain quail, 12-4371

California quail, 10-3621

European quail, 9-3132

Quakers

beliefs of, 2-552

East Jersey bought by, 2-552

Elizabeth Fry, 16-5699-5703

persecuted in Massachusetts Bay Colony, 2-555

Picture, on trial in American colonies, 2-551

Quaking grass

Picture, with note, 10-3652

Picture (in color) 10-3522

Quantum, energy from electron, 16-5809

Quarries

Pictures

granite and marble, 13-4528

granite quarry, Vermont, 11-3775

Quarter days. In England, Wales and Ireland,

the days marking the four quarters of the year:

Lady Day, March 25; Midsummer Day, June 24;

Michaelmas Day, September 29; and Christmas

Day, December 25. In Scotland the quarter days

are Candlemas, February 2; Whitsun, May 15;

Lammas, August 1; and Martinmas, November 11.

Quarter-deck salute, why it is done by British

sailors, 4-1354

Quartz (SiO₂). The most common of all minerals,

forming 12 per cent of the earth's crust. It

is hard enough to scratch glass and may be colorless,

milky, smoky, yellow, amethyst, rose,

green, etc., with a glassy lustre. Uses: to make

glass, as ornamental stones, as prisms in optical

work, etc. Quartz veins in the earth often

contain rich gold deposits. It is found in all

granites.

description, 3-774

Quassia, drug from bitterwood tree, 8-2911

Quaternary age. geological era, 2-634

Quatrain, definition, 1-216, 223

Quatre Bras, battle of, 6-2208

Quebec (city)

citadel, 6-1962

Confederation conference, 1864, 4-1488

history (arranged chronologically)

founded by Champlain, 2-680

Cartier visited Indian village on its site, 1534, 2-678

first colonists, under Cartier, 2-679

surrendered to English, in 1628, 2-680

attacked by Arnold, 1775-76, 3-942

capture by Wolfe, 3-783-84; 6-2100

Pictures, 3-776

Indian village on site of, 2-678

Laval University *see* Laval

name, origin, 16-5742

Poem about. Quebec, by F. G. Scott, 12-4476

Pictures, 8-2948

tablet of the Golden Dog, 15-5367

two views, 4-1485

Quebec. Largest Canadian province, on both sides of the St. Lawrence; area, 594,434 square miles; capital, Quebec. It was first visited by Cartier in 1535, Quebec City being founded by Champlain in 1608, and existed as a French colony up to 1763; five-sixths of the people are of French descent, speaking French. The chief industries are dairying, lumbering, mining, manufacturing and paper-making, the forest resources being enormous; 175,000 square miles are said to be still untouched. The world's largest supply of asbestos is produced here, while Montreal is the largest city and chief export centre in the Dominion.

French language, use of, 8-2950

government when made British colony, 3-941-42

habitants, life of, 8-2952-56

* history, 1763-1840, 3-941-46

divided into Upper and Lower Canada (i. e. present Ontario and Quebec), 3-944

as Lower Canada, 1791-1840, 3-944-46

became province of Dominion in 1867, 4-1488

map, 1-107

physical geography, 1-106-12

See also Lower Canada

Pictures, 8-2953-56

Appalachian Region, 1-109

habitant dwelling, 10-3478

Laurentian Plateau, 1-111

St. Lawrence Lowlands, 1-111

two scenes, 8-2948

Quebec Act, Canada, 1774, provisions, 3-941

objections of British settlers, 3-944

Quebec Bridge, Canada, account of, 1-29

construction of, 1-39

Pictures, 1-39

Queen Anne's lace, flower, 15-5392, 5396

Picture, 15-5396

Queen Anne's War, *see* French and Indian Wars

Queen's College, former name for Rutgers College, 12-4308

Queensborough Bridge, N. Y. city, 1-29

Queensland, Australia

account of, 7-2468

separated from New South Wales in 1859,

7-2468

Queenston Heights, Battle of. In the War of

1812. Canadian troops numbering about 2,000

defeated an American force of 6,000.

Queenstown, Ireland. *Picture*, 8-2933

Queer and lowly creatures, * 19-7059-69

Queer plants, * 9-3261-68

Quentin Durward, by Scott, note on, 11-4070

Quercia, Jacopo della, Italian sculptor, 13-4606

Quesada, Gonzalo Ximinez de, Spanish adventurer, 19-6862

Questionarius, Roman fire marshal who fixed

the blame for fires, 9-3158

Queues, long braids worn in China, 2-436

Quezal, bird, 9-3370-71

Picture, Mexican quezal (in color), 10-3623

Quiberon Bay, Battle of. Naval engagement between

the British under Hawke and the French,

in 1759, during the Seven Years' War. Risking

his ships among uncharted rocks while a gale

was blowing, Hawke chased and attacked the

French and utterly destroyed their fleet, thus

preventing an invasion of England and giving

England the command of the sea. Quiberon

Bay is a small arm of the Bay of Biscay.

Quicksand

Question about. What is the cause of quick-

sand? 9-3102

GENERAL INDEX

Quicksilver, or mercury (Hg). The only metal that is liquid at ordinary temperatures. It is a heavy tinny-white metal with a tendency to separate into globules. It amalgamates easily with other metals. Although mercury sometimes is found uncombined, the main supply for commerce comes from cinnabar (sulphid of mercury), a cochineal-red mineral. Spain, Austria and the United States have been the big producers, so far, of this metal.

action as a liquid, 3-879
boiling point of, 8-3014
production in U. S., 9-3210
specific gravity, 14-5038
use in barometers, 15-5286-87
use in thermometers, 7-2648
uses of, 9-3210

Questions about

What is the stuff we call quicksilver? 4-1233
Why do our hands keep dry when dipped in quicksilver? 5-1608
Why does iron float on mercury and not on water? 16-5845
Why does quicksilver roll up into little balls? 2-688
Why does quicksilver run away when we touch it? 3-879

Quid pro quo. Latin expression for value for value, or value in return. Literally, "what for what."

Quill pens, notes and pictures, 10-3549

Quiller-Conch, Arthur, author, 11-3898

Quinine, medicine, 8-2909-10

Quinsywort, flower

Picture (in color), 14-4985

Quintianus, governor of Sicily, and St. Agatha, 6-1997

Quintilian, Marcus, Roman teacher, 14-5247

Quitclaim. The simplest form of transfer of a freehold, deriving its name from the ancient instrument of release whose words were "remise, release, and forever quitclaim." In many states it answers the purpose of either a release or a grant.

Quito. Capital of Ecuador, standing over 9,000 feet above sea-level among lofty volcanic mountains. It has a cathedral and a university, and manufactures textiles, leather goods and jewelry.

Quo vadis? Latin for "whither goest thou?"

Quoits, Garden, game, 10-3769

Quorum. The Latin for "of whom." A legal and parliamentary term denoting the number of members of private and public corporations necessary for the transaction of business. In private corporations the number is fixed by the charter; in legislative assemblies by the Constitution, though sometimes left to the determination of the assemblies themselves.



Ra (or Re), Egyptian sun-god, 3-810, 815

Rabbit, in picture frame, 4-1393

Rabbi. The Hebrew for "my lord." An honorary title applied to Jewish teachers of the law. In the time of Christ the title was used merely as a term of respect, but later it was restricted to those authorized to decide ritualistic and legal questions.

Rabbits, account of, 3-1134

drawing, trick picture, 19-6964

pest in Australia, 7-2468

Poem about. Sun was Falling off to Sleep, by Harold Begbie, 8-3007

Pictures, 3-1126, 1130

Rabelais, Francois, French author

life and writings, 18-6564

Gargantua, story of, 7-2484

Picture, portrait, 18-6564

Rabies, disease, cure discovered by Pasteur, 15-5482

Raccoon, animal, 3-872

Pictures, 3-868; 13-4698

Raccoon dog, 2-602

Races

hoop race, 12-4496

hop, skip, and jump, 10-3769

Races (continued)

obstacle race, 10-3769

on sand, 17-8258

Races of mankind

effect of geographical barriers, 6-2172

our duty to backward ones, 5-1674

Racine, Jean, French dramatist, 18-6711

Racine, Mrs. Ann, writings of, 6-2257

Radiation of heat and light, 11-3839

heat transmission, explanation, 15-5426

experiment to show, 2-6-3

Radiation pressure, explanation, 16-5809-10

acts contrary to gravitation, 14-5181

Radio Corporation of America

photoradiograms, 17-6372

Pictures, sending and receiving radiograms, 17-6371

Radio picture transmission, 17-6188, 6370, 6372

Radio telegraph, 17-6054, 6056, 6061

Marconi's invention of, 17-6247-48

use on ships, 12-4421

See also Radio telephone

Picture, diagram illustrating system, 17-6061

Radio telephone

* Wonder of radio, 17-6363-73

and wire systems, 17-6370

directions for building

crystal receiving set, 15-5510

one-tube set, 1-335-36

short-wave receiving set, 13-4624

future uses of, 17-6370

how to prevent static, 17-6260

invention and use, 17-6188, 6247-48

on auto trips, how to use, 16-5977-78

transmitter, 17-6366

* *Pictures,* 17-6363-73

power house of a radio plant, 17-6367

sets on Canadian National Railway, 17-6369

Radio waves, explanation of, 17-6364

Radiograms, notes with pictures, 17-6371

Radiolaria. A group of microscopic animals forming an order of rhizopodous Protozoa. Found in the surface water of the ocean after death, their beautiful shells fall to the bottom and form "radiolarian ooze." They supply food for countless minute animals, which in turn supply the fishes.

Radishes, 7-2624

Pictures, 7-2620

sea radish (in color), 14-4981

wild radish (in color), 15-5611

Radisson, Pierre Esprit (1620-1710?). French adventurer and explorer who explored North America as far west as the Mississippi and as far north as James Bay. Offered his service to the English and led an expedition into Hudson Bay. This was the start of the Hudson's Bay Company.

Radistchev, Alexander, Russian author, 19-6906-07

Radium

and heat of the earth, 2-387-88

and the atom, 12-4290

in luminous paint, 8-3016

produces helium, 14-5084

where found, 2-388

Rae, Henrietta, British painter

Picture. Apollo and Danphe (gravure), 9-3237

Raeburn, Sir Henry, Scottish painter

life and work, 7-2330-31; 6-2112

Pictures

portrait, 7-2327

Lord Newton (in color), 7-2339

Portrait of a lady (gravure), 6-2115

Sir John Sinclair (gravure), 6-2115

Two Fergusons (gravure), 6-2120

Raffia, account of, 8-2788

baskets, how to make, 6-2042; 18-6638-39

Raffles, Sir Stamford, discovered Rafflesia

arnoldi, 9-3266

Rafflesia arnoldi, largest flower, 1-332; 9-3266

Raft, toy, how to make, 11-4083

Rag carpet, how to make, 14-4997-99

Ragged Schools, and Dr. Guthrie, 17-6140

Rags-and-tatters, name for mallow, 14-4979

Ragusa, or Dubrovnik. Ancient port of Dalmatia, Jugo-Slavia, having been Greek, Roman and an independent republic. It has a cathedral and many medieval buildings.

Picture, 17-6347

Ragweed. *Picture,* 9-3396

Ragwort, weed

description, 15-5390, 5396

GENERAL INDEX

Ragwort (continued)

- Picture*, 15-5396
Pictures (in color), 14-4996
 marsh ragwort, 16-5882
Rahere, court jester, 16-5964
Railroad stations. *Pictures*, 2-419-20
Railroads
 * history of inventions, 5-1611-18
 air-brakes, invention of, 19-7212
 Canadian National Railway, oil-electric engine, 16-5678
 early objections to, 5-1616
 effect on English life, 7-2296
 electric, account of, 16-5804-06
 in Australia, 7-2468, 2470
 in Canada
 Canadian National Railways, 4-1492
 Canadian Pacific Railway, 4-1491
 in central Asia, 18-6584, 6586
 in France, 11-3820-21
 in Rhodesia, 9-3052
 in Russia, 16-5852
 in Spain, 14-5048, 5050
 in Switzerland, 16-6008
 in United States
 Chicago, early railroads, 19-7107
 extent, 10-3399
 importance and total mileage, 9-3218
 to Pacific coast, 18-6432
 mail trains, 8-2656, 2658
 Pullman's inventions, 19-7212
 tracks invented for convenience. in coal-mining, 3-790; 5-1614
 trains
 * Wonder of a train, 2-405-20
 first train, description, 5-1616
 first trains to run in England, 5-1610
Questions about
 Does the smoke of a train go the opposite way to the train? 2-585
 When I walk in a moving train do I move faster than the train? 5-1811
 Why are we thrown forward when the train stops suddenly? 12-4505
 Why does a man tap the wheels of a train at the station? 16-5962
 Why does a railway engine puff? 15-5366
 Why does the whistle change as the train comes nearer? 11-4132
Pictures
 early locomotives and trains, 5-1610-11, 1615, 1617
 locomotives, tracks, trains, stations, etc., 2-409-20; 16-5797
 mail train, 8-2657
 trains passing at night (in color), 2-408
Rails, name for marsh-hens, 14-5020
 resemble penguins, 11-4130
Pictures (in color), 9-3283
 Virginia rail, 12-4371
Rails of railroad tracks
 reason for space between, 8-2742, 2881
Railton, William, designed Nelson Column, 12-4361
Railways, *see* Railroads
Rain
 * account of, 8-2921-24
 cause of, 8-2666
 rainfall
 effect of seasons on, 8-2794
 importance, 8-2666-67
 in tropics, 8-2794
 instrument for detecting, 10-3626
 thunder and lightning caused by, 8-2924
Poems about
 Rain in Summer, by H. W. Longfellow, 18-6649
 Rain on the Roof, by Coates Kinney, 11-4034
Questions about
 Could people live without rain? 17-6290
 How far does rain sink into the earth? 11-4133
 Is it a sign of rain when the smoke blows down the chimney? 12-4279
 Where does the rain go? 6-2249
 Why is a snowflake lighter than a raindrop? 9-3101
 Why is salt damp when it is going to rain? 12-4506
 Why is the rain sometimes heavy and sometimes light? 17-6180
Rain-gauge, directions for making, 10-3625-26
Rain that raineth every day, * 8-2921-28

Rain-water

- Question about*. Is it harmful to us to drink rain-water? 1-310
Rainbow
 Greek myth regards as trail of Iris, 9-3228
 how produced, 16-5810
Poems about
 The Rainbow, by John Keble, 9-3107
 The Rainbow, by William Wordsworth, 2-607
Questions about
 How does the sun make a rainbow? 13-4828
 How many colors has the rainbow? 7-2486
 When we are looking at a rainbow can people see the other side? 6-2251
 Where does the rainbow end? 16-5958
Raindrop
Question about. Why is the shape of a rain-drop round? 11-3843
Rainfall, *see* Rain
Rainier, Mt.
Pictures, 7-2318; 19-6849
Raisins, from California, 6-2062
Picture, drying grapes, 6-2066
Rajah. Originally a title of the princes of India who governed a territory; later a title given by native governments; and last by the British Government to Hindus of rank. Native princes are now frequently called Maharajah, or "Great King."
Rajmahal, India
Picture, heights overlooking Banas River (grave), 8-2829
Rajputana. Group of 21 native states in central India; area, 130,000 square miles; chief towns, Jaipur and Ajmere. In the northwest is the Thar desert, the people being pastoral and nomadic, but cereals and oil-seeds are grown in the south.
Rajputs, warrior caste of India, 8-2821
Rake, meaning as nautical term, 14-5004
Raleigh, Sir Walter
 * life of, 14-4965-70
 and Elizabeth Throgmorton, 5-1812
 and potatoes, 7-2618
 * and Roanoke colony, 17-6333-37; 14-4966-67
 and Virginia colony, 6-1972
 attempted settlement in America, 2-543
 spread cloak for the Queen, 5-1818
 See also Poetry Index for poems and notes
Pictures
 portrait, 1-245
 portrait (gravure), 5-1821
 portraits (in group), 3-1117, 1122
 episodes in his life, 14-4958-59
 two scenes in his life, 5-1812
Raleigh. Capital of the State of North Carolina. It is a large cotton and tobacco market. Among its manufactures are cotton goods, yarn, hosiery, underwear, structural iron, agricultural implements, cotton oil, fertilizers and woodenware. named for Sir Walter Raleigh, 17-6337
Picture, Capitol building, 17-6337
Ralph Roister Doister, first English comedy, 2-721
Rambler, by Samuel Johnson, 5-1867
Rambouillet, Marquise de
 influence on French literature, 18-6711
Rambouillet, breed of sheep, 15-5576
Rameses II, king of Egypt, 3-818
Picture, statue of (gravure), 11-3878
Ramie, account of, 8-2788
 cloth from, 5-1627
Ramona, by Mrs. H. H. Jackson, * story of, 1-133-40
Rampion, flower
Pictures (in color), 14-4990
 rounded-headed rampion (in color), 14-4995
Ramsay, Allan, Scottish painter, 6-2112
Pictures
 A Lady, 6-2109
 portrait of his wife (gravure), 6-2115
Ramsay, Allan, poet, 6-2028
Ramsay, Sir William
 helium discoveries, 11-3923
 theory about smell, 11-3956
Ramson, flower
Picture (in color), 14-4988
Rand, The, mining district in Transvaal, South Africa, 9-3052
Randall, James Ryder, wrote Maryland, My Maryland, 18-6513-14
See also Poetry Index for poem and note

GENERAL INDEX

- Randolph, John, of Roanoke** (1773-1833). An American statesman, descendant of Pocahontas. Fought duel with Henry Clay.
- Rands, William Brighty**, *see* Poetry Index for poems and notes
- Ranger, R. H.**, inventor
Picture, portrait, 17-6370
- Rangoon**. Capital of Burma and fourth largest Indian port. The export centre for the Irrawaddy valley, it has an immense trade in rice, teak, cotton, hides, and especially oil. Here is the Shwe Dagon pagoda.
- Rankin, Jeannette**, first woman member of Congress, 14-5272
- Rapallo, Treaty of**, 17-6348
- Rape**, as fodder plant, 7-2412
Picture, great broom rape (in color), 14-4989
- Raphael, Italian painter**
* life and work, 3-959-60
as architect, 17-6300
Pictures
 portrait by Pinturicchio (gravure), 3-964
 Balthasar Castiglione (gravure), 3-964
 figure to represent poetry, 1-216
 fresco in Vatican, 3-957
* pictures of the Madonna (gravure), 3-961-64
 Pope Julius II (gravure), 3-962
 St. John in the Desert (gravure), 3-964
 School of Athens in Pope's palace, 2-700
- Raphael, Mary F.**, artist
Picture, Guinevere in the Nunnery Garden (gravure), 19-6948
- Rarotonga**, Cook Islands, 7-2576
- Rasmussen, Knud**, arctic explorer, 13-4722
- Raspberry**
 flowering, account of, 15-5608
 wild, 11-4020
 Pictures, 6-2063
 flowering raspberry, 15-5604
 red raspberry (in color), 11-4023
- Raspe, Rudolf Erich**, German scholar
* Adventures of Baron Munchausen, extracts, 4-1421-27
- Rasselas**, by Samuel Johnson, 5-1867
- Ratel**, animal, 3-873
Picture, 3-869
- Ratio**. From the Latin for "reckoning." The relation between two similar quantities in respect to how many times one makes so many times the other.
- Ratisbon**, Germany
Picture, cathedral (gravure) 17-6170
- Ratoons**, new shoots of sugar cane, 7-2531
- Rats**
* account of, 3-1133-34
 spread bubonic plague, 17-6424
 Poem about
 Pied Piper of Hamelin, by Browning, 1-224
 Pictures, 3-1129, 1131
- Rats, Kangaroo**, *see* Kangaroo rats
- Rattan**. A genus of East Indian and tropical African palms with reed-like pointed stems sometimes several hundred feet long. Used for making bridges, plaited work, and chair-bottoms in native countries, and exported under the name of cane. The fruits of some species are good for food; another gives very fine "dragon's blood."
 making basket from, 6-2042
- Rattan-palm**, *see* Palms
- Rattle, Yellow**, flower
Pictures, (in color) 14-4993; 15-5399
- Rattler**, first warship with a propeller
 contest with Alecto, 17-6401
- Rattlesnake flags**, in American Revolution, 19-7182-83
- Rattlesnake plantain**, description, 19-6928
- Rattlesnakes**, varieties, and account of, 15-5416
Pictures with notes, 15-5415
- Ravenna**, Italy, 13-4566
 and early Christian art, 2-580; 16-5716
 Corsini Canal, with picture, 13-4573
 Pictures, Mosaics in San Vitale church, 2-577, 581; (gravure), 1-70
- Ravens**
 account of, 8-2889-90
 northern, account of, 14-5140
 of North America, account of, 13-4766
 Pictures, 8-2895; (in color) 9-3282
- Raw materials**, meaning of term, 9-3212
- Rawlinson, Sir Henry Creswicke**
 discovery of Behistun Rock, 2-648; 10-3548; 18-6670
- Rayleigh, John William Strutt**, 3d baron
 experiments with sound, 17-6316
- Raymond IV, count of Toulouse**
 and First Crusade, 7-2584-85
- Rayon**, imitation of silk, how made, 13-4828; 15-5310
- Rays**, fishes, 16-5774
Pictures (in color)
 cuckoo ray, 16-5782
 shagreen ray, 16-5781
 starry ray, 16-5781
- Razor-bills**, auks, 11-4126
Pictures, 11-4125; (in color) 9-3284
- Razor-shells**, molluscs, description, 19-6888
Pictures, 19-6886, 6891; (in color) 19-6893
- Re (or Ra)**, Egyptian sun-god, 3-810, 815
- Reaction**. In psychology, a term used to denote response to stimuli of the senses; in chemistry, the mutual action of chemical agents upon one another; in dynamics, a force called into being along with another force, being both equal and opposite to it.
- Read, Albert C.**, aviator, 1-176
- Read, T. Buchanan**, *see* Poetry Index for poem and note
- Reade, Charles**, English novelist, 11-3894
Picture, portrait, 11-3891
- Reading, Rufus Isaacs**, 1st earl of
 note and portrait, 19-7165
- Reading**. Iron- and steel-manufacturing city in Pennsylvania in an important coal-field.
- Reading, England**
 Abbey, grant of land, 5-1566
- Reading**
 games for learning, *see* Games, Educational
 reading poetry aloud, 2-605
 See also Books
 For list of helps in learning to read, *see* 20-7645-46
- Real estate**. Land, including whatever belongs with it, as minerals, water, trees, buildings, fences, etc. It descends to the heirs of a deceased owner.
- Real master of the body**, * 11-4065-68
- Realms of gold**, * 1-79-81
- Reaping**, invention of machinery for, 19-7210-11
Pictures, of reaper, 1-374; 7-2465
- Reason**. An idea acting as a cause to confirm a belief or induce an action; also used for the intellectual faculty of logic.
Question about. Is there a reason for everything that happens? 16-5740
- Reaumur thermometer**. A thermometer used largely in Germany and Russia. The scale between the freezing and the boiling points is divided into 80 degrees, zero being the freezing point.
See also 7-2648
- Rebellion**. War waged against a government by some of its citizens for the purpose of changing its composition, constitution or laws. In English history the Great Rebellion was the opposition to the Stuarts between 1642 and 1660; in United States history, the Civil War.
- Recall**. To summon or cause to return or be returned, as to recall an ambassador, or a decree.
- Récamier, Madame**
Picture, portrait, by David, 6-2078
- Receipt**. A written acknowledgment of having received something specified, with date, source, signature and such other particulars as the case requires. Receipt also written "recipe."
- Recipes**, *see* Cooking—recipes; Candy—recipes
- Reciprocity Treaty**, United States and Canada, 1854-66, 4-1488
- Reclamation Act**, U. S., aided irrigation, 7-2546
- Reclamation service**. A department devoted to the improvement of land for agricultural purposes by draining or irrigation.
- Reconstruction**, after American Civil War, 7-2444
- Recorder, Robert**, first English astronomer, 1-205
- Records of talking machines**, *see* Talking machines—records
- Recreation**. For list of main articles, *see* 20-7639
- Recreation piers**, N. Y. city, 15-5624
- Rectangle**. A parallelogram which has four right angles.
- Rectum**, in body, 6-2085
- Red cedar, or savin**. A tree native to North America. It grows in sandy or rocky places from Lake Champlain to the Gulf of Mexico. Conical in form, it has horizontal branches, very

GENERAL INDEX

Red cedar (*continued*)
small leaves and small bright blue berries.
Used for lead pencils, fence-posts, etc.

Red Cross

and Clara Barton, 14-5271
formation at Geneva, 16-6008
Question about. How did the Red Cross Society
get its emblem? 18-6557

Red-flowered currant, *see* Currants—red-flowered
Red geese, *see* Flamingoes

Red gum, how to tell wood, 6-2048

Red-hot-poker, flower, 19-7172

Picture (graveure), 19-7175

Red Indian paint, *see* Bloodroot

Red Indian paint brushes, *see* Painted cups

Red-letter day. Saint's day or festival of the
Church marked with red in the calendar; also
any day happily memorable in the life of an in-
dividual.

meaning of, 18-6557

Red may, variety of hawthorn, 12-4384

Red-rattle, Marsh

Picture (in color), 16-5882

Red Riding-Hood doll, how made, 2-516-17

Red River. An American river rising in the
Staked Plain, Texas, and flowing into the Mis-
sissippi River, 1,200 miles.

Red River. A navigable river rising in Lake
Traverse, Minnesota. It crosses the international
boundary between the United States and Can-
ada, flows through Manitoba, and empties into
Lake Winnipeg. Its length, from its American
source to its Canadian mouth, is 700 miles.

Red River, Canada

Riel rebellion of 1869-70, 4-1489

Red River hog, 5-1722

Picture, 5-1721

Red Sea. Arm of the Indian Ocean stretching
1,500 miles from Suez to the Strait of Bab-el-
Mandeb. Its shores are arid and infertile, but
since the opening of the Suez Canal it has be-
come the chief route from Europe to the East.
Suez, Port Sudan, Suakin, and Jiddah, the pil-
grimage port of Mecca, are its chief ports.

cause of color, 15-5540

in Great Rift Valley, 2-585

Red-tails, birds, *see* Redstarts

Redbirds, *see* Cardinal-birds

Redbud, tree, description, 12-4386

Redgauntlet by Scott, note on, 11-4071

Redhead, dog, 11-3889

Redmond, John, Irish leader, 8-2940

Redpath, Mrs. Beatrice, Canadian poet,

14-5109-10

Redpolls, birds, 8-2973; 13-4832

Picture, nest and eggs, 8-2971

Picture (in color), 9-3281

Redshanks, birds

Picture (in color), 9-3130

Redstarts, birds

account of, 9-3140

description, 13-4840

American

a warbler, not a thrush, 9-3140

description, 9-3279

Pictures, 9-3135

European (in color), 8-2897

nest, showing cowbird's egg, 13-4765

Redwinged blackbird, 13-4766

Picture, 13-4833

Redwings, birds, 9-3140

Redwood trees, *see* Sequoia trees

Reed, Walter, physician, discovered cause of
yellow fever, 15-5490

Picture, portrait, 15-5481

Reed-bird, name for bobolink, 8-2970; 14-5023

Red grass

Picture, with note, 10-3653

Pictures (in color), 10-3523-24

Reedlings, Bearded, birds

Picture (in color), 8-2900

Reeve, Mrs. Winifred Eaton (Onoto Watanna),

Canadian novelist, 15-5370

Referendum. In politics, the referring of the
acceptance or rejection of certain laws or leg-
islative proposals to the direct vote of the
electors.

in Switzerland, 16-6008

Reflection

from water, 3-978

of light, laws of, 17-6081

Question about. Why do we see in a mirror
things not in front of it? 4-1230

Reflex action, explanation, 7-2612; 17-6289
tickling causes, 11-3978

Reform Bill, 1832. English parliamentary
measure which disfranchised rotten and pocket
boroughs and gave members to large boroughs
like Birmingham and Brighton. It also made
other needed electoral reforms.

foundation of popular government, 7-2298

Reform schools. Penal institutions for young of-
fenders where punishment is made secondary to
reform. For both young men and young women
there is constant training, physical, mental
and industrial, to enable the prisoner to stand
alone after his or her release, which is often
made dependent upon progress made.

Reformation, Protestant

in England

Henry VIII closed monasteries, 5-1816

Queen Mary's opposition, 5-1817-18

in Germany, 11-3964

influence on German literature, 17-6268

in Switzerland, 16-6004

in the Netherlands, 15-5560, 5562

See also Luther, Martin; Wyclif, John

Reforms, Social, *see* Social reforms

Refraction, of light, 17-6081-82

and eyesight, 10-3686

and hot-air current, 5-1751

experiment to show, 2-622

explanation, 12-4156

illustrated by mirage, 5-1806

in looking across a fire, 5-1752

shown by appearance of objects in water,

2-688

Regent. One who is given authority in the ab-
sence, minority or disability of the king; in the
old universities a doctor who takes part in in-
struction or government; in the state of New
York a member of the body known as the Uni-
versity of the State of New York.

Regiment. The largest permanent association
of soldiers, consisting of any number of battal-
ions according to the country and the arm of the
service. It is the third subdivision of an army
corps, several regiments forming a brigade, and
several brigades a division.

Regina. Capital and commercial centre of the
Canadian wheat-growing province of Saskatche-
wan.

history, 4-1490

Registration. The act of recording in a regis-
ter, such as the registration of deeds, of births,
deaths and marriages, and the registration of
votes. In the United States, Canada and Eng-
land this last requires voters to register their
names in books provided for the purpose in each
election district, so as to prevent frauds.

Regulus, Roman senator

bravery of, 1-125

captive in Carthage, 4-1362

Picture, 4-1365

Reichenstein, Castle of, legend about, 18-6504-05

Reichstadt, Duke of, *see* Bonaparte, Francis

J. C.

Reichstag, German parliament, 11-3970

Reid, George A., Canadian painter, 10-3702

Reid, Mrs. George A., *see* Winch, Mary

Reign of Terror, in France, 10-3568, 3570

Pictures, 10-3567

See also France—history—Revolution

Reindeer, 4-1447-48

introduced into Alaska, 16-5792

Reindeer-hunters, Prehistoric, *see* Man, Pre-

historic and primitive

Reindeer-moss, form of lichen, 3-882

Reis, Johann Philip, and the telephone,

17-6241-42, 6184

Relativity, Theory of, 14-5181

Ray, race, in water, 8-3024

Religion

See Prayer—Poetry: Hymns

For list of Religious Poems, *see* 20-7680-81

Religion, Freedom of, in U. S. Constitution,

5-1792

Religions

* Some founders of religions, 9-3085-98

Egypt, ancient, 3-810, 812, 814

Influence of Eastern literatures, 15-5459

of Micronesia, 9-3300

See also Myths and legends

Rembrandt, Dutch painter, etcher and engraver

* life and work, 5-1709-12

compared with Hals, 5-1712

GENERAL INDEX

Rembrandt (continued)

- * *Pictures*, 5-1713-16
 - portraits of himself, 5-1713, 1716
 - Old Lady (graveure), 1-68
 - Old Woman Cutting Her Nails, 5-1708
 - Syndics of the Cloth-workers' Guild, 5-1709

Remington and Sons, makers of typewriters, 19-7214

Remus, brother of Romulus, 4-1192

Renaissance

- and French literature, 18-6564
- and Italian literature, 17-6154
- causes, 3-823-24
- changes during century before Shakespeare, 3-1117-18
- relation to fall of Constantinople, 1453, 13-4800

Renaissance architecture, *see* Architecture, Renaissance

Renaissance art

- * Artists of Flanders, 4-1221-28
- * Wonder men of Florence, 3-691-99
- Leonardo and Michelangelo, 3-823-31
- Raphael and his time, 3-957-60
- See also* Painting, Italian

Reni, Guido, Italian painter, 3-1108

Picture, Aurora (graveure), 3-1110

Rennie, John, changed bridge-building, 1-27

Reno, Nevada

description, 8-2675

Pictures, 8-2675

street scene, 19-6847

Renoir, Auguste, French painter, 8-2712

Pictures

Madame Charpentier, 8-2711

The Walk, 8-2711

Writing Lesson, 8-2712

Rent, explanation, economic, 17-6092-93

Repin, Ilya (or Elias) Yefimovich, Russian

painter, 8-2852

Pictures. Count Tolstoy in the Fields, 19-6909

Letter to the Sultan, 16-5697

Replevin. An action brought to recover possession of goods unlawfully taken or detained. A writ is issued for the seizure of the goods, and the plaintiff is required to file a sufficient bond to cover any damages that may result to the defendant. The defendant must return the goods if possible and does not have the option of paying their value instead.

Reproduction

fowls, 12-4494

plant, 2-506-09

in flowering plants, 3-884-85

in flowerless plants, 10-3721

in ferns, 4-1232

in hair-cap moss, with pictures, 4-1279

in liverworts, mosses and ferns (cryptogams), 3-884

See also Flowers—fertilization of: Seeds

Pictures

in ferns, 3-1015

in seaweeds, 3-883

Reptiles

* The extraordinary snakes, 15-5409-16

* Marvelous reptile family, 14-5227-35

characteristics of, 1-258

orders of, 14-5228

similar to birds, 8-2757

Pictures

brain of reptile, 8-2943

crocodile family, 14-5226

lizards, 14-5231, 5233

snakes, 15-5409, 5411, 5413-15

tortoises and turtles, 14-5227, 5235

Reptiles, Prehistoric, 1-258; 14-5227-28

account of, 4-1176

in Mesozoic period, 2-634

in Triassic period, 4-1402

in Jurassic period, 5-1545-47

in Cretaceous period, 5-1660-61

with wings, 8-2757

Republic, form of government

account of, 5-1788

Republican Party. One of the major political parties of the United States, organized 1854-56. It was organized to fight the extension of slavery, and nominated John C. Fremont for president in 1856. Because of Democratic division it elected Lincoln in 1860. Since the Civil War it has been on the whole the party of conservatism, favoring a protective tariff, "sound money" and territorial expansion. It must not be confused

Republican Party (continued)

with the Republican party of Jefferson. *See* Democratic Party.

organized, 7-2429-30

Research bureaus in stores, 10-3674-76

Reservoirs. Places where things are kept in storage; generally applied to large receptacles for fluids or gases, as the reservoirs where water is stored to supply a city. Crude oil is also kept in tanks or reservoirs.

for New York water supply, 14-5055-60

Resin, or rosin, product from pine, 9-3151

Resolute, ship. *Picture*, 12-4414

Resonators

examples of, 19-6853

shell, 5-1608

tuning fork, 14-4952

explanation of, 5-1810

for human voice, 19-6853-54

Picture, with note, 19-6851

Respiration, *see* Breathing

Rest-harrow, flower

Picture (in color), 14-4982

Resurrection plants, 7-2515

Retainer. One who is kept in service, an attendant. In law, the employment of a lawyer to prosecute or defend an action or represent a person. Also applied to the fee paid to a lawyer at the first consultation in order to secure his services, and forming a part of the whole fee.

Retina, of eye, 11-3801-04

temporary blind spot, 14-4950

Picture, portion magnified, 11-3801

Retorts, tubes in gas-making, 2-636

Pictures, 2-637, 640

Retrievers, hunting dogs, 2-718-19

Pictures, 2-719; (graveure), 2-713

Reval, or Tallinn. Capital and chief port of Esthonia, exporting flax and cereals. There are a cathedral and mdieval guild-houses.

Revenge, ship, fight with Spaniards, 13-4739; 14-4965

Poem about. The Revenge, by Lord Tennyson, 13-4739-40

Revere, Paul

ride to warn colonists, 4-1163

Poem about. Paul Revere's Ride, by H. W.

Longfellow, 15-5649

Pictures

grave of, 18-6834

home of, 18-6832

Revillon Frères, trading in Canada, 12-4340

Revolution, American

* history, 4-1157-74

* Two spies of the Revolution, 11-3995-97

Canada, events in, 3-942

causes, 4-1157-62

flags used, 19-7182

influence in France, 10-3564

naval battles, 17-6325-28

terms of peace treaty, 5-1695-96

Washington took command of army, 3-1040

Poems about

Concord Hymn, by R. W. Emerson, 11-4032

Independence Bell, 15-5648

Nathan Hale, by F. M. Finch, 4-1381

Paul Revere's Ride, by H. W. Longfellow, 15-5649

Song of Marion's Men, by W. C. Bryant, 11-4032

Pictures, 4-1160-74

Revolution, French, *see* France—history—Revolution

Revolver. A revolving firearm, specifically a pistol, which formerly had a barrel provided with a number of bores. To-day it has a single barrel with a revolving cylinder at the base containing a number of chambers which are brought automatically into relation with the firing mechanism for rapid fire. Six is the common number of chambers. The first practical revolver was made by Colonel Colt in the United States.

Reykjavik, capital of Iceland, 15-5298

Reynard the Fox, medieval story

adventures of Reynard, 8-2965-66

extract from story, 18-6561

Reynolds, Sir Joshua, English painter

* life and work, 6-2109-11; 7-2332

Pictures

portrait of himself, 7-2335

in Chippendale's workshop, 18-6769

in two groups, 7-2333

with father, 15-5616

GENERAL INDEX

Reynolds, Sir Joshua (continued)

- Pictures* (gravure)
 Lavinia, Countess Spencer, 6-2117
 Lord Althorp, 6-2119
 Lord Heathfield, 6-2120
 Miss Bowles, 1-63
 Mrs. Siddons as the Tragic Muse, 6-2113
 Portrait of Master Hare, 6-2118
Pictures (in color)
 Age of Innocence, 7-2340
 Lady Cockburn and Her Children, 7-2338
 Miss Bowles, 7-2340
- Reynolds-Stephens, W.**, British artist
Picture, In the Arms of Morpheus (gravure), 9-3230
- Rhadamanthus**, judge of the dead, 9-3238
- Rheas**, birds, 13-4656-57
Pictures, 13-4654-55
- Rhebok**, animal, 4-1444
Picture, 4-1445
- Rheims, or Reims**. A city of Champagne, France, with a great trade in wine and an extensive textile industry. Its Gothic cathedral was irreparably damaged by the German bombardments, 1914-18, but the main structure is still standing.
 cathedral, 17-6159
Pictures, cathedral, 8-3011; (gravure), 17-6166
- Rheingrafenstein, Castle of**, legend of, 18-6507
- Rheinstein, Castle of**, legend about, 18-6504-05
Picture, 18-6505
- Rhetoric**. The art of using technical means for influencing the minds, imagination and actions of others by the use of language. It is the art of oratory, including both composition and delivery; it is also written composition and recitation.
- Rheumatism**. An acute or chronic disease characterized by local inflammation. It may involve the joints or the muscles. Common in moist and temperate climates, it is generally considered due to some toxin produced in the system. Exposures to wet and cold and sudden chilling bring it on. For the treatment of acute rheumatism rest in bed is imperative, with strict control of diet and application of heat. Chronic rheumatism is best treated locally by friction with stimulating liniments.
- Rhine River**
 course of, 15-5555
 description, 12-4162; 16-6000
 * legends of, 18-6503-07
 mud carried by, 7-2538
 source, Toma See, 17-6089
Poem about. The Lorelei, by Heine, 6-2035
Pictures, 17-6409
 at Bingen, 12-4165
- Rhine Valley and Great Rift Valley**, 2-585
- Rhinoceros**
 * account of, 5-1828-30
 ancient superstitions about, 1-354
 horn supposed to be medicinal, 5-1829
 characteristics, 5-1830
Pictures, 5-1825, 1827, 1831
- Rhode Island**. The smallest state in the Union; area, 1,248 square miles; capital and largest city, Providence. Textile-manufacturing is the leading industry, and jewelry is important. Abbreviation, R. I. Nickname, "Little Rhody" or "Plantation State." Flower, violet. Motto, "Hope." First settlement, Providence, 1636.
 described in Northeastern States, 10-3401-02; 11-3773-82; 12-4145-54
 early history (arranged chronologically)
 colony founded, 2-550
 Anne Hutchinson in, 14-5268
 signers of Declaration of Independence, 20-7556
 not in Constitutional Convention, 20-7558
 slow to ratify Constitution, 20-7560
 manufactures, importance of, 11-3774, 3778, 3782
 stars on early flag, 19-7182-83
Pictures
 flag (in color), 19-7190
 John Hay Library, Brown University, 12-4212
 Newport, views of, 12-4148
- Rhode Island College**, former name for Brown University, 12-4308
- Rhode Island reds**, breed of poultry, 12-4492, 4494
Picture (in color), facing 12-4492

Rhodes, Cecil, life, sketch of, 1-74

- Pictures*, monument, grave, home, etc., 9-3051
- Rhodes, James Ford**, American historian, 13-4823
- Rhodes**. Mediterranean island famous as the headquarters of the Knights Hospitallers in the Middle Ages. It was ceded to Italy in 1920.
 government of, 18-6458
- Rhodes, Colossus of**, see Colossus of Rhodes
- Rhodes scholars**
Question about. What are Rhodes scholars? 1-74
- Rhodesia, Africa**, 9-3052
- Rhododendrons**, shrubs
 account of, 13-4783
 note on, 13-4774
 of Pacific coast, 19-6937-38
Pictures, 13-4774; 19-6937
 flower (gravure), 19-7176
- Rhombus**. A quadrilateral figure whose four sides are equal and opposite sides parallel, but whose angles are unequal, two being obtuse and two being acute.
- Rhone, French river**, 11-3816
 source, 16-6000
- Rhubarb**, account of, 7-2616
 used as medicine, 8-2910
Picture, Turkey rhubarb (in color), 8-2999
- Rhyme**, use in poetry, 1-99-100, 216
- Rhymes**, game of making, 18-6518
- Rhythm**
 in pictures, 8-2710
 in poetry, 1-321; 2-605
- Rialto Bridge, Venice**, 4-1458
Picture (gravure), 17-6304
- Ribera, José (Spagnoletto)**, Spanish painter, 4-1496
Picture, Adoration of the Shepherds, 4-1494
- Ribs**, fracture of, 13-4847-48
- Riccardi Palace, Florence**, 17-6298
Pictures (gravure), 17-6308
- Rice, James**, novelist, 11-3898
- Rice**, cereal
 account of, 5-1854, 1856
 as food, 7-2424
 bread made from, 1-372
 cultivation, 5-1623
Pictures, 5-1850
 cultivation in the Philippines, 7-2551
 fields of, 5-1853-57
 grinding in stone jar, India, 8-2697
 irrigation in Java, 7-2555
 Japanese rice-cleaner, 2-571
 threshing of, 9-3189
- Rice-birds**, name for bobolinks, 8-2970
- Rich treasure that is ours**, * 1-61-72
- Richard I, the Lion-hearted**, king of England
 life and reign, 5-1570
 fleet of, 11-3916
 found by Blondel in prison, 16-5827-30
 in Third Crusade, 7-2587
Pictures
 entering Joppa, 7-2585
 meeting with Saladin, 7-2589
- Richard II, king of England**
 life and reign, 5-1683
 abdication, 5-1678
Picture, giving up his crown, 5-1678
- Richard III, king of England**
 reign of, 5-1684
 killed princes in the Tower, 1-147-49
- Richards, Theodore W.** (1868-). Foremost American chemist; in 1914 he won the Nobel Prize.
- Richardson, Henry Hobson**, American architect,
 influence, 18-6682, 6684
 Capitol building, Albany, 11-3779
- Richardson, John**, Canadian author
 life and writings, 14-5103-06
- * Wacousta, quotations and summary, 9-3141-49
- Richardson, Samuel**, English novelist
 life and writings, 6-2213-54
Picture, portrait, 6-2255
- Richelieu, Cardinal**, as a statesman, 10-3136
 and colonies in Canada, 2-680
- Richier, Ligier**, French sculptor, 13-4700
- Richmond, Sir W. B.**, British artist
Picture, Venus and Adonis (gravure), 9-3232
- Richmond Castle**
 legend of King Arthur's grave, 17-6324
- Richmond**. Capital of Virginia, trading largely in tobacco; varied industries. The capital of the Confederacy in the Civil War, it has many

GENERAL INDEX

Richmond (continued)

fine buildings and monuments and a splendid cathedral.

Pictures

- Capitol Square, 14-4900
original Capitol, 7-2441
St. John's Church, 18-6830
White House of Confederacy, 14-4893
- Richter, Christian**, artist
Picture, miniature of Oliver Cromwell (gravure), 1-67
- Richter, Davis**, English painter, 8-2860
- Richter, Gustave**, German painter
Picture, Portrait of George Bancroft, 13-4822
- Richthofen, Baron von**, German aviator, 17-6293
- Riddles**, 18-6521, 6640-41, 6781
in rhyme, 15-5511
- Riders on the wind**, * 1-167-84
- Ridley, Nicholas**, Bishop of London; born, Northumberland, about 1500; burned, Oxford, 1555.
- Riel, Louis**, and Riel rebellions, 4-1489
- Riemenschneider**, sculptor of Wurzburg, 13-4699
- Rifle**. A firearm having a barrel with a spirally grooved bore, which imparts to the bullet a rotation whereby its flight is rendered more nearly accurate. Formerly muzzle-loaded, then breech-loaded and now self-loading, the hunting rifle of to-day, though differing in detail, is practically of one type.
- Rifle birds**, 8-2894
- Rift Valley**, *see* Great Rift Valley
- Riga**. Capital of Latvia, on the Dwina. A cathedral city and a great commercial centre and port, it manufactures cottons, tobacco, hardware, glass, paper and jute.
- Rigaud, Hyacinthe**, French artist, 5-1876
- Rigel**, star, 11-3786, 3924
- Riggs, Mrs. K. D. Wiggin**, *see* Wiggin
- Right of way**. In law, the right to pass over land. Also denotes the path or road over which a right of way may be exercised. Twenty years open exercise of a right of way makes it permanent.
- Riley, James Whitcomb**, American author, 13-4819
See also Poetry Index, for poems and notes
Picture, portrait, 13-4821
- Riley Memorial Park**, *Picture*, 13-4821
- Rilo Monastery**, Bulgaria
Picture, 14-4925
- Ring and the Book**, by Robert Browning
criticism of, 10-3691
- Ring-taw**, game with marbles, 17-6389
- Ring-toss**, game, making board and playing, 14-5117
- Ringhals**, snake, description, 15-5414
- Rings**
Question about. Why do all married women wear wedding rings? 7-2610
- Rio de Janeiro**, description, 19-7047
water power, source of, 15-5430
Pictures, 19-7041, 7047
- Rio Grande**, a river in the southern part of North America. Rising in southwestern Colorado, it flows south across New Mexico, then southeast to the Gulf of Mexico, forming the boundary between Texas and Mexico. Near its mouth are Brownsville, Texas, and Matamoras, Mexico. Much of its water is drawn off for irrigation in New Mexico. The river is 1800 miles long and can be navigated by small boats for about 450 miles from the mouth.
- Riot**. A form of criminal offense against the public peace when three or more persons meet to act violently and tumultuously. In common law the offense is a misdemeanor; if it causes loss of life or serious bodily injury, it is a felony. If the riotous enterprise is directed against the government, the offense is treason.
- Rip Van Winkle**, by Washington Irving, extracts, * 12-4481-85; 13-4559-62
- Riparian rights**. The rights under the law of owners of land containing a watercourse or bounded by one, to its banks, bed and waters. In common law the rights of an owner adjacent to water extend to the middle of the stream; those of an owner whose land contains a stream are absolute unless they inflict injury on other riparian owners.

Ripon Falls. *Picture*, 7-2541

Risso's dolphin, Pelorus Jack, 6-2220

Picture, 6-2219

Rivadavia, Bernardino, Argentine statesman, 19-7034

River under a city, * 14-5055-60

Rivers

- * **Rivers and the seas**, 7-2537-38
action in formation of earth, 2-629
formation of deltas, 5-1607
in mythology, 9-3236
lower land by carrying mud to sea, 2-630
- Poems about*
The River, by F. G. Scott, 10-3481
Tide River, by Charles Kingsley, 5-1646
- Questions about*
Why can we not see the bottom of a river? 10-3580
Why does a river curve and twist rather than run straight? 15-5614

Pictures, 7-2540

Rivers and the seas, 7-2537-42

Riverside, California

Sherman Institute, notes and pictures, 19-7243

Riveting, description, 2-748

Riviera. French and Italian resort on the Mediterranean; sometimes called the Côte d'Or. Chief towns, Nice, Monte Carlo, Mentone, Cannes, Rapallo.

Riviere, Briton, British painter

Picture, Apollo (gravure), 9-3230

Rivulus, fish. *Picture* (in color), 16-5785

Rizzio, David, murder of, 12-4214

Road

Question about. Why do two sides of a road seem to meet in the distance? 14-5222

Roadrunners, birds, 14-5022

California, belong to cuckoo family, 10-3501
Picture, 10-3499

Roadside plants and weeds, * 15-5387-5400

Roanoke Island, North Carolina

lost colony of Sir Walter Raleigh, 14-4966-67; 17-6333-37

Rob Roy, first steamboat from Glasgow to

Belfast, 17-6402

Rob Roy, novel, by Scott, note on, 11-4071

Robber crabs, climb trees for food, 16-5954

Robbia, Andrea della, Florentine sculptor, nephew and pupil of Luca della Robbia; born, 1437; died about 1528; father of four sculptor sons.

Pictures of sculpture (gravure), 13-4612

Robbia, Giovanni della, Italian sculptor, 5-1740

Picture of sculpture (gravure), 13-4612

Robbia, Luca della, Italian sculptor

* life and work, 5-1740

work and influence, 13-4606-07

Pictures

portrait, 5-1735

angels (gravure), 5-1748; 13-4615

singing gallery (gravure), 13-4611, 4616

Robert I, king of Scotland, *see* Bruce, Robert

Robert III, king of Scotland, 12-4212

Robert II, duke of Normandy

and First Crusade, 7-2585

Robert, Hubert, French painter, 5-1882

Roberts, Charles G. D., Canadian author,

14-5107; 15-5370, 5373

See also Poetry Index, for poem and note

Picture, portrait, 14-5102

Roberts, Frederick Sleigh, Earl. British field-marshal; born, Cawnpore, India, 1832; died, St. Omer, France, 1914. Led march from Kabul to Kandahar; defeated Boers at Paardeberg.

March from Kabul to Kandahar, 18-6591

Roberts, H. F., developed varieties of wheat,

4-1474

Roberts, Theodore Goodridge, Canadian author,

14-7107

See also Poetry Index, for poems and notes

Roberts, William Carman, Canadian author,

14-5107

See also Poetry Index, for poem and note

Robertson, James, pioneer

* life and work, 6-2196-97

settled in Tennessee, 6-1966-08

Roberval, Jean François de la Roque, Sieur de
expedition to Canada, 1741, 2-678-79

Robespierre, Maximilian Marie Isidore

in French Revolution, 6-2134

death of, 10-3570

Pictures, portraits, 6-2127; 18-6715

GENERAL INDEX

Robin Hood

- * Robin Hood (story), 2-397-402
- Robin Hood (play), 19-7078-79
- Pictures*, 2-397-401

Robins

- American
 - * account of, 13-4839
 - belong to thrush family, 9-3140
 - in western North America, 14-5137
 - Picture*, 9-3135
- English
 - account of, 9-3140
 - Pictures*, 9-3137
 - nest, 9-3137
- golden, *see* Orioles—Baltimore
- mountain, name for varied thrush, 14-5137
- winter, name for pine grosbeak, 13-4832
- Poem about*, Robin Redbreast, by William Allingham, 1-324
- Pictures* (in color), 13-4842
- English robin, 9-3131

- Robinson, Andrew, designed fishing schooner, 11-4958

- Robinson, Edwin Arlington, poet, 14-5013-14
- Robinson, Henry Crabb, diaries of, 5-1727-28
- Robinson Crusoe, by Daniel Defoe
 - * extracts and summary, 2-665-75

- Robusti, Jacopo, *see* Tintoretto

- Roc, imaginary bird, 1-355

- Rochefort, Belgium. *Picture*, 15-5504

- Rochester. The third largest city in New York State, 7 miles from Lake Ontario, on the Genesee River. The city is well laid out, with many parks and fine buildings. Its chief manufactures are photographic apparatus, optical instruments, boots and shoes, ivory buttons, carbon paper and typewriter ribbons.

- Rochester, England

- Picture*, cathedral (gravure), 16-5974

- Rock cook, fish

- Picture* (in color), 16-5782

- Rock salt, or massive salt. Occurs in sedimentary rocks as shales or sandstones. It is the chlorid of sodium called halite, and contains 60.41 per cent of chlorine and 39.50 of sodium. In the United States most productive deposits are in New York, Pennsylvania, Virginia, West Virginia, Ohio, Michigan, Illinois, Kansas, Louisiana and Texas. In Canada, near Windsor, Ontario.

- Rocked in the Cradle of the Deep, song, origin of, 10-3608

- Rockefeller, John Davison, Sr. (1839-). American capitalist and founder of the Rockefeller Institute for Medical Research, the Rockefeller Foundation, etc.

- Rocket, flower

- Pictures* (in color)

- purple sea rocket, 14-4981

- sand rocket, 14-4981

- Rocket, locomotive, 15-5266

- Stephenson's invention, 5-1616, 1618

- Picture*, 5-1615

- Rockfish, *see* Bass—striped

- Rockland, Maine, electric plant, 18-6558

- Rockling, fish

- Pictures*

- five-bearded rockling, 16-5779

- three-bearded rockling (in color), 16-5782

- Rockrose, flower

- Picture* (in color), 14-4983

Rocks

- and study of the earth, 6-2070

- aqueous, from sea and land, 2-630

- how to know, 17-6385-86

- igneous, how made, 2-630

- making a collection of, 13-4623

- metamorphic, 2-630

- varieties of, 3-773-75

- See also* Geology

- Question about*. Does a rock breathe? 9-3102

- Picture*. The changing earth from age to age, 6-2022

- Rocky Mountain bee plant, 18-6656, 6658

- Picture*, 18-6654

- Rocky Mountain fever, cause, 16-6019

- Rocky Mountain goat, 4-1378

- Picture*, 4-1373

- Rocky Mountain National Park, Colorado,

- 18-6434

- description, 7-2288

- Picture*, Chasm Lake, 7-2287

- Rocky Mountain sheep, *see* Bighorns

Rocky Mountains

- Canadian, description, 1-114

- description, 18-6434

- flora of, 18-6661-67

- Rococo, *see* Baroque

- Rodents, animals, account of, 3-1127-34

- Pictures*, 3-1126, 1129, 1131

- Rodin, Auguste, French sculptor, 13-4706

- Pictures*

- Age of Bronze, 13-4705

- Burghers of Calais, 13-4704

- Creation of Man, 13-4705

- Rodrigues, island, 9-3184

- Roebbing, J. A., bridges built by, 1-29

- Roebuck berry, or stone bramble

- Picture* (in color), 11-4028

- Roemer, Ole, measured speed of light, 10-3473

- Roeskilde. Ancient Danish capital, in Zealand. It has a 13th-century cathedral.

- Roger, Count of Thurn

- and postal service in Tyrol, 8-2653

- Rogers, Mrs. Grace McLeod, Canadian author, 15-5370

- Rogers, John, American sculptor, statuettes of, 14-4934

- Rogers, Randolph, American sculptor, 14-4934

- designed doors of U. S. Capitol, 5-1533

- Rogers, Samuel, *see* Poetry Index for poems and notes

- Rogers, Capt. Woodes. English navigator; died, 1732; rescued Alexander Selkirk from Juan Fernandez.

- Roggeveen, Jacob, visited Easter Island, 9-3296

- Roland, legendary French hero

- death of, at Roncesvalles, 18-6560

- Song of Roland, 10-3430

- Roland, Madame

- in French Revolution, 6-2134

- Pictures*

- portrait, 6-2127

- mocked in the prison grounds, 6-2129

- Roland, Song of, 10-3430

- Roller-skating races, N. Y. city, 15-5627

- Rollers, birds, 9-3374

- Picture*, long-tailed roller (in color), 12-4372

- Rolling log, trick in swimming, 8-3624

- Rollo, 1st duke of Normandy, and Charles the Simple, 10-3431

- Rolt, Daniel, inventor, 16-5743

- Roman Catholic church, *see* Catholic church

- Roman literature

- * account of, 16-5907-13

- writers of Augustan age, 4-1199

- Roman numerals. In the Roman system (for symbols, *see* Tables, 20-7859) there is no zero: the value of the symbol is reduced by placing before it one of a lower order (IV=4, XC=90); and the effect of a bar over the numerals is multiplicative (XXX=30,000). Like the Arabic, the system reckons in tens (the figures of two hands).

- Romance of the Rose, French poem, 18-6562

- Romanesque architecture, *see* Architecture,

- Romanesque

- Romano, Giulio, Italian painter and architect, 17-6300

- Romanoff dynasty, in Russia, 16-5692

- Romans

- bridges built by, 1-27

- method of reckoning time, 11-4131

- See also* Rome, Ancient

- Question about*. How did the Romans measure distance? 2-463

- Romanticism in French painting, definition, 6-2081

- Rome (city)

- burned by Gauls, 309 B.C., 4-1194

- Farnese Palace, 17-6300

- legend of founding, 4-1192

- public buildings, ancient Rome, 4-1193, 1200

- St. Peter's Church, 17-6309

- situation, 4-1192

- story about, Geese who kept guard, 11-3982

- Vatican, *see* Vatican

- Pictures*

- * famous buildings (gravure), 17-6302-08

- * general views, architecture, sculpture,

- (gravure), 4-1201-08

- Appian Way, 15-5340

- interior of the Colosseum (gravure), 15-5353

- St. Peter's Church, 8-3011; (gravure),

- 17-6305, 6308

- tomb of Hadrian, 13-4565

GENERAL INDEX

Rome, Ancient

- architecture, *see* Architecture, Roman
- calendar, explanation of, 5-1752
- colonies and dependencies
- colonies founded, 4-1194
- colonies in Rhine valley, 11-3960
- in Britain, or England, 4-1320-24
- in Switzerland, 16-6000
- fire department in, 9-3157-58
- government, under Republic, 4-1193
- government, under Empire, 4-1198
- history (arranged chronologically)
- * to barbaric invasions, 5th century, A.D., 4-1191-1200
- Republic founded, 4-1193
- * great men, to Empire under Octavius, 4-1361-68
- Punic Wars, 4-1194-96
- Empire established, 4-1199
- * Empire, Octavius to Constantine, 5-1859-66
- conquest by barbarians, 4-1200
- influence on later nations, 4-1191
- law, codes of, 13-4812
- literature, *see* Roman literature
- locks and lock substitutes, 6-2021
- mills, public, 8-2796
- mythology, *see* Myths and legends—Greek and Roman
- newspapers, substitutes for, 7-2483
- postal service, 8-2653
- public entertainments, 4-1198
- religion, *see* Myths and legends—Greek and Roman
- sculpture, 12-4468, 4470
- ships and navy, 4-1194; 11-3914
- social conditions, under Empire, 4-1196, 1198
- water power, development of, 8-2796
- weakness of, 4-1196, 1198
- writing materials, 10-3550
- For list of related articles, *see* 20-7589
- Poem about, How Horatius Kept the Bridge, by Lord Macaulay, 10-3639
- Pictures*
- battleship, 11-3913
- chariot race in Circus Maximus, 10-3744
- Goths entering Rome, 4-1195
- Hannibal's army crossing Rhone, 4-1195
- in England, 4-1314, 1318-24
- money, 16-5680
- Parthenon, 4-1197
- Rome, King of**, *see* Bonaparte, Francis
- Romeo and Juliet**, play by Shakespeare
- criticism, 3-836
- story of, 16-5759-60
- Pictures*, 3-832, 837
- Romilly, Sir Samuel**, opposed excessive punishments, 7-2296
- Romney, George**, English painter
- life and work, 7-2334
- characteristics of painting, 6-2111
- Picture*, portrait, 7-2327
- Pictures* (gravure)
- Lady Craven, 6-2115
- Mr. and Mrs. Lindow, 6-2114
- Mrs. Mark Currie, 6-2114
- Pictures* (in color)
- Lady and Child, 7-2337
- Lady Kerr, 7-2338
- Romulus**, legendary founder of Rome, 4-1192
- Ronalds, Francis**, invention of telegraph system, 17-6236-37
- Roncesvalles, Battle of**, 18-6560
- Rondebosch**, Africa
- Picture*, Rhodes Memorial, 9-3051
- Ronsard, Pierre de**, French poet, 18-6565
- See also* Poetry Index for poem and note
- Röntgen, William**, discoverer of X-rays
- life, sketch of, 15-5484
- discovery of X-rays, 16-5940
- Röntgen rays**, *see* X-rays
- Rood, Thomas**, early printer, 9-3386
- "Roof of the World," in Asia, 18-6583
- Roofs**
- Question about, Why is iron-roofing usually corrugated? 6-2124
- Rooke, Sir George**, captured Gibraltar, 9-3181
- Rooks**, birds, 8-2890-91
- Pictures*, 8-2769
- young rooks leaving nest, 8-2889
- Picture*, (in color), 8-2899
- Rooms**
- Question about, Why are the doors of rooms generally in a corner? 16-5962

Roosevelt, Theodore, president of U. S.

- * life of, 19-7196-98
- life, outline of, 11-3954
- administration, 8-2672; 11-2944, 3949
- and conservation of forests, 8-2804
- and John Burroughs, 19-7058
- mediation between Russia and Japan, 2-566
- Pictures*
- portraits, 19-7199
- portrait (gravure), 11-3946-47
- birthplace in N. Y. city, 19-7197
- grave at Oyster Bay, 19-7193
- Roosevelt, ship**, in arctic exploration, 13-4720
- Roosevelt dam**, Arizona, *Picture*, 7-2552
- Rooster fight**, game, 18-6523
- Root, Elihu** (1845-). Distinguished American lawyer, politician and diplomat.
- Root, George F.**, song-writer, 18-6513
- Roots**
- of banyan tree, 9-3261
- root-hairs, structure and use, 2-614
- sensitive to gravity, 2-744
- sensitive to moisture, 2-744-45
- structure and work, 2-614
- uses of, 2-613
- value as fodder, 7-2412
- value as food, 5-1624
- Question about, What makes the roots of a tree grow downward? 3-878
- Pictures*, 2-612, 615
- cross-section showing root-hairs, 2-504
- peculiarities of rubber tree, 4-1407
- tree roots, 3-874
- Rope**, balancing on, 10-3426
- * kinds, and manufacture, 11-3791-3800
- Questions about
- If we swing a rope why does it go on swinging? 10-3734
- Why does a rope not lie straight when thrown on the ground? 8-2872
- Pictures*
- * materials used, and manufacture, 11-3793
- rope-walk, 11-3795, 3800
- See also* Knots
- Roper, Mrs. Margaret**, daughter of Sir Thomas More, story of, 14-5124-25
- Roraima, Mt.**, *Picture*, 7-2318
- Rorquals**, whales, 6-2216
- Picture*, model of, 6-2217
- Rory O'More**, song, origin of, 10-3610
- Rosa, Salvator**, Italian painter, 3-1108
- Rosario**, Great grain port and manufacturing city of Argentina, on the Paraná.
- Rosas, Juan Manuel de**, Argentine dictator, 19-7034
- Roscoe, William**, *see* Poetry Index for poem and note
- Roscommon, Ireland**
- Picture*, Boyle Abbey, 8-2942
- Rose, Gustave**, German mineralogist, 19-7234
- Rose Family**, in botany, 13-4872
- fruits belonging to, 6-2062
- plants belonging to, 16-5876
- sweet briar, 11-4019
- trees belonging to, 12-4382-83
- See also* Roses
- Rose-root**, plant, 15-5602
- Picture*, 15-5605
- Rosebay**, flower
- Picture* (in color), 14-4987
- Rosecrans, William Starke** (1819-98). American general, born in Ohio. He graduated from West Point in 1842, resigned from army in 1854, but fought in the West during the Civil War; defeated at Chickamauga and transferred; held several political offices after close of war, at Chickamauga, 7-2436
- Rosenthal, Toby Edward**, American painter
- Picture*, Morning Hymn at Bach's, 19-7070
- Rosenwald, Julius**, philanthropist, note and portrait, 19-7166
- Roses**, flowers
- cultivated, account of, 19-7169
- field, seeds of, 11-4020
- galls produced by wasps, 17-6232
- guelder rose, 11-4020; 17-6131
- note and picture, 14-4972
- Nutka rose, 19-6934
- paper, how to make, 12-4500
- perfume, attar of roses, made in Bulgaria, 14-4926
- Poems about
- Moss Rose, by Krummacher, 19-6987

GENERAL INDEX

Roses—*Poems about (continued)*

- Rose and Root, by J. J. Platt, 12-4348
Wild Rose, by Goethe, 19-6987
Pictures
different varieties (gravure), 19-7175-80
wild rose, 19-6927
Pictures (in color)
Burnet rose, 14-1982
dog rose, 13-4880
downy rose, 14-4987
field rose, fruit of, 11-4025
guelder rose, fruit of, 11-4026
trailing rose, 14-4992
Rosetta, Egyptian port 35 miles east-northeast of Alexandria where the Rosetta Stone was found.
Rosetta Stone, 10-3548
description, 3-812, 814, 821
Picture, 10-3547
Rosewood, how to know, 16-5982
Rosin, or resin
product from pine, 9-3151
Ross, Betsy, made first American flag, 6-2092;
19-7183
Picture, house in Philadelphia, 13-6833
Ross, Sir James Clark
antarctic explorations, 14-5090
charted position of magnetic pole, 8-2986
Picture, portrait, 8-2977
Ross, Sir John, arctic explorer, 8-2986
Picture, portrait, 8-2977
Ross, Sir Ronald, discovered cause of malaria,
15-5490
Picture, portrait, 15-5481
Rossbach, Battle of, 11-1049
Rossellino, Antonio, Italian sculptor, 13-1606
Rossetti, Christina, poetry of, 12-4232
See also Poetry Index for poems and notes
Rossetti, Dante Gabriel, British author and
painter, 8-2904
and Pre-Raphaelites, 6-2236
poetry of, 12-4230
See also Poetry Index for poems and notes
Pictures
The Annunciation (gravure), 6-2240
Beata Beatrix (gravure), 6-2237
Blessed Darnozel, 8-2905
Rossini, Gioachino Antonio, Italian musical com-
poser, 19-6924
Picture, portrait, 19-6912
Rotation of crops, explanation, 4-1453
avoidance by soil treatment, 2-557
in North Central states, 15-5282
Rothschild, Lionel Nathan, 19-7162, 7164
Rotorna, New Zealand, *Pictures*, 7-2580
Rotten boroughs. In Great Britain certain mu-
nicipalities which had had the right of returning
a member to Parliament lost their population, or
fell under control of members of the nobility
and acted in elections only according to their
wishes. These were disfranchised by the Re-
form Bill of 1832.
Rotterdam. Busiest port of Holland, with splen-
did quays and docks. It exports linen, flax,
cattle and dairy produce, and has shipbuilding,
sugar-refining, metal and chemical industries.
Picture, railway bridge, 15-5565
Rouen, French city, 11-3818, 3821
cathedral, 17-6159
Church of St Ouen, note and picture, 10-3574
Picture, cathedral (gravure), 17-6165
Rouget de Lisle, author of Marseillaise,
10-3605-06; 18-6716
See also Poetry Index, for poem and note
Pictures, portrait, 18-6715
singing the song, 10-3565
Rough Riders, cavalry regiment, 19-7197
Roughing it in the Bush, by Susanna Moodie,
* summary and quotations, 16-5901-05
Roumania, see Rumania
Round Table of King Arthur, see Arthur, King
—Round Table
Round the World in Eighty Days, by Verne
* summary and quotations, 12-4235-44
Rousseau, Jean Jacques
ideas and influence, 18-6715
influence on education, 14-5252
influence on French Revolution, 6-2128
Picture, portrait, 18-6559
Rousseau, Théodore, French painter, 7-2370
Picture, The Pond (gravure), 7-2374
Routhier, Basile, see Poetry Index for poem and
note

Rowan (Mountain ash), tree, 12-4382

- Pictures*
fruit (in color), 11-4027
tree, flower and leaf, 12-4396
Rowboats, safety rule for, 14-5179
Rowley, Mass., first woolen mill in America,
15-5516
Royal Academy, England
how founded, 7-2328
Sir Joshua Reynolds first president, 6-2110
Royal Canadian Mounted Police, * 16-5831-38
Poem about. Mounted Police, by R. W. Service,
15-5421
Pictures, 16-5831-37
Royal George, ship, 11-3918
Poem about. Loss of the Royal George, by
Cowper, 1-324
Royal Oak, The. The name given to the oak of
Boscobel in which Charles II hid himself after
the battle of Worcester in 1657.
Royal Society. Organized in London in 1660,
one of the oldest scientific societies in Europe.
Its present home is Burlington House. It
awards four medals every year, one Copley for
philosophical research, two Royal for the two
most important contributions to science within
the British dominions, and the Davy for the
most important discovery in chemistry in Eu-
rope or British America.
Royal William, first steamship to cross Atlantic,
17-6402
Roybet, Ferdinand, French painter, 8-2858
Royce, Jos'ah (1855-1916). American philoso-
pher, born at Grass Valley, Cal. Graduated from
University of California, and after further study
taught at Harvard. He published many books,
and was a member of many learned societies.
Rozinante, Don Quixote's horse, 5-1629
Ruapehu, volcano in New Zealand, 7-2574
Rubber
* account of, 4-1405-14; 8-2790
* preparation of, 4-1409-14
caoutchouc, 9-3261
Ceara, 4-1410; 8-2790
Goodyear's inventions, 19-7211
how discovered, 4-1405
Manicoba, 4-1410
Para, 8-2790
plants producing, 8-2790
production of, statistics, 4-1408
sensitive to temperature, 4-1406
tapping the trees, 4-1406, 1408
uses of, 4-1408
See also Caoutchouc
Question about. How does rubber rub out ink?
5-1809
Pictures
* growth and preparation, 4-1404-14
man gathering rubber, 4-1404
plant producing caoutchouc, 8-2997
trees, and rubber plantation, 8-2789
trees, strange roots, 4-1407
Rubellite, see Tourmaline
Rubens, Peter Paul, Flemish painter, 5-1585-86
Pictures
Garland of Fruit, 5-1589
Holy Family, 5-1584
Mother and Child, 5-1589
Painter's Sons, 5-1589
Rubicon River
crossing of, meaning, 4-1366
Question about. What do we mean by cross-
ing the Rubicon? 18-6552
Ruble. Russian silver coin of the value of 100
kopecks, the unit of Russian coinage.
Rubric. Special passage in a book written in
red; particularly directions for conduct of wor-
ship in liturgies, so printed as to be easily dis-
tinguished.
Ruby, account of, 19-7231-32
Picture (in color), facing 19-7225
Ruby-throated humming-bird, 13-4831
Rubycrest, bird, variety of warbler, 9-3279
Ruccellai Palace, Florence, 17-6298
Rudder, explanation, 14-5002
in ancient Egyptian ships, 11-3910
Ruddy, duck, 11-3889
Rude, François, French sculptor, 13-4706
Rudolph of Hapsburg, German king, 11-3963
heroism of, 6-2007
rule in Switzerland, 16-6002
Picture, condemning robber-knights, 11-3967
Rue, see Meadow-rue

GENERAL INDEX

- Rueda, Lope de.** Famous Spanish dramatist and actor; born, Seville; flourished 1544-67; founded popular national theatre.
- Ruetli**, three men of, 16-6004-05
- Ruffs**, birds, 11-4012
Pictures, 8-2756; 11-4011
- Rugby**, kind of football, 19-6961
- Rugs**, directions for making
 hand-woven, 14-4997-99
 wool rug with canvas, 6-2265-66
Picture, hand-woven, 14-4997
- Ruhmkorff coils**, explanation, 16-5802
- Ruhr**. German tributary of the Rhine which contains in its basin the coal-mining district of Westphalia. Here are the industrial towns of Dortmund, Bochum, Essen, Mülheim, Duisberg and Ruhrort.
 French occupation of Ruhr valley, 11-3974
- Ruisdael, Jacob**, Dutch painter, 5-1590, 1592
Picture. Mill on the Dyke, 5-1587
- Ruisdael, Salomon**, Dutch painter, 5-1590
Picture. Country Scene, 5-1591
- Rule Britannia**, song, origin of, 10-3606
- Rumania**
 cities, 14-4922
 * description, 14-4922
 * history, 14-4918, 4922
 maps, 14-4923; 17-6197
 national hymn, 17-6253
 oil production, note and picture, 13-4550
 population, 5-1606
 salt mine, 3-929
 territorial changes since World War, 14-4922; 18-6458, 6462
 portion added from Hungary, 17-6340
Pictures, 14-4924, 4928, 4931
- Rumanians**. A people of very mixed race who speak a language of mixed Latin and Slavonic origin. Many Roman colonists settled in Transylvania and Moldavia, especially in the 13th century, on the break-up of the Byzantine Empire, but the Huns, Finns, Magyars and Slavs occupied these regions formerly. The nation to-day sets store by its Latin origin.
- Rumelia**, part of Bulgaria, 14-4926
- Ruminants**, group of animals, characteristics, 4-1441
- Rumsey, James**, and invention of steamboat, 17-6398
- Runeberg, Johan Ludvig**, Swedish poet, 19-7014
See also Poetry Index for poem and note
- Runes**, from the Old Norse and Icelandic for letter, writing, secret, mystery. The alphabets used among the ancient Scandinavian peoples. The name is especially applied to letters carved on weapons or on stones which are found in Scotland and Ireland and in other maritime regions of Europe as well as Scandinavia. It also is used for a short sentence of mystic meaning which holds some of the wisdom of old philosophers of the Northlands.
- Running**
Question about. Why do we get out of breath when we run? 7-2610
- Rupee**. A silver coin of India divided into 16 annas of 12 pies and worth about 32 cents.
- Rupert, Prince of the Palatinate**
 in English Civil War, 11-3850
Picture, portrait, 11-3845
- Rupert's Land**, Canada
 granted to Hudson's Bay Co., 12-4338
 invasion by the French, 12-4338
 sold to Canada by Hudson's Bay Co., 4-1489; 12-4340
- Rural Free Delivery**, explanation of, 8-2658
Pictures, 8-2660
- Rurik**, Viking king of Russia, 15-5292; 16-5691
- Rush, William**, American sculptor, 14-4933
Picture. The Nymph of the Schuylkill, 14-4935
- Rush, Flowering**, description, 16-5876
 note on, 16-5874
Pictures, 16-5874; (in color) 16-5883
- Ruskin, John**
 * life and writings, 9-3311, 3314-16
 * King of the Golden River, story, 6-2221-28; 7-2343-50
 note on, 6-2221
 quotation about wealth, 14-5246
Pictures
 portrait, with parents, 15-5616
 as a boy, in church, 9-3315
 copying Giotto pictures, 9-3311
- Russell, Bertrand**, English mathematician on sound and light waves, 16-5812
- Russell, Clark**, writer of sea stories, 10-3608
- Russell, Henry**, song-writer, 10-3608
Picture, portrait, 10-3605
- Russell, Horne**, Canadian painter, 10-3703
- Russia**
 agriculture, 16-5852, 5854
 art, 8-2851-52
 churches, under Soviet rule, 16-5858
 cities, 16-5858-59
 climate, 16-5848
 * description, 16-5847-59
 Duma, or Parliament, established, 16-5696
 emblem, double-headed eagle, 16-5691
 forests, 16-5854
 * history, 16-5691-96
 Napoleon's invasion, 6-2207
 Crimean War, 7-2299
 land-ownership system, 16-5854
 * literature, 19-6905-11
 map, 16-5690
 mines and minerals, 16-5854
 physical geography, 16-5847-48
 population, 5-1605; 16-5847
 races, 16-5850
 railroads, 16-5852
 republics of, 16-5850
 salt beds, 3-928
 serfdom of peasants, 16-5692
 freeing of serfs, 16-5694
 song, Hymn of Free Russia, by Balmont, 17-6253
 soviet government, 18-6463
 established, 16-5696
 Spencer, Herbert, influence on, 2-595
 territorial losses, recent, 16-5847; 18-6463
 map of, 16-5650
 White Russians, 16-5850
Pictures, 16-5691-97, 5849-57
- Russian language**, origin of alphabet, 10-3548
- Russias**. Divided into Great, Little and White Russias, this Slav nation is the most numerous next to the English. The vast majority are peasants. Those in Siberia are the best type. As a race they have assimilated the Mongol elements which existed previously in Eastern Europe.
- Russo-Japanese War**, 16-5696
- Russo-Turkish War**. The war in 1877-78 in which Russia tried to extend her dominions toward the Mediterranean. Russia was successful, and the Treaty of San Stefano was signed March 3, 1878. But the European powers were unwilling to allow Russia the additional territory gained, and a congress was called at Berlin for a new settlement.
- Rust**
 composition of, 4-1356
 preventing and removing on tools, 2-628
 preventing on nails and screws, 11-4079-80
 reason it weakens iron, 10-3578
 removing stains of, 2-618
- Rustchuk**, Bulgaria, 14-4926
- Rustic furniture**, how to make, 13-4736
- Ruthenes**. Also known as Ruthenians, Red Russians, or Rusniaks, this Slav people inhabit East and Central Galicia, North and West Bukovina, a part of Poland, and the valleys of the Carpathians in the east of Czecho-Slovakia. They are a very poor and backward peasant people.
- Rutledge, Ann**, and Lincoln, 3-1049
Poem about. Ann Rutledge, by E. L. Masters, 4-1514
Picture, grave, Petersburg, Ill., 3-1049
- Ruyter, Michael de**. The greatest Dutch admiral; born, Flushing, 1607; died, Syracuse, Sicily, 1676; sailed up the Thames and Medway in 1667.
- Ryder, Albert**, American painter, 10-3455
Picture. Tilers of the Sea (graveure), 10-3462
- Rye**, grain, 5-1852
 bread made from, 1-372
Picture, 5-1850
- Rye grass**, description, 7-2410; 10-3650
Pictures, 10-3650; (in color), 10-3522
- Ryerson, Egerton**, first general superintendent of education, Ontario, 4-1186
- Ryswick, Peace of**, 1697. Treaty signed by England, France, Spain, Holland and Germany, ending conspiracy between Louis XIV and the Stuarts.

GENERAL INDEX



Saadi, Persian poet, 15-5463
Saale, German ship, fire on, 9-3162, 3164
Saar Valley. One of the chief German coal-fields, pledged to France after the World War.
Sabbath, *see* Sunday
Sabbatias, plants, 14-5165
Sabine River. American river, rising in northern Texas; flows into the Gulf of Mexico. 460 miles.
Sabines, and Romans, 4-1192
Sable, animal, 3-872
Sable Island. A dangerous island off the coast of Nova Scotia. It has been called the "Graveyard of the Atlantic" because of the ships wrecked on its shore.
Sabotage. French word implying deliberate damage to material, machinery and so on by men on strike, with the object of injuring their employers and bringing them to terms. The word (from *sabot*) originally meant "shoemaking."
Sabots, wooden shoes, in France, 11-3821
Sac-fish, 16-5900
Sacajawea (1790-1844). A squaw of the Shoshone tribe who rendered great service for the Lewis and Clark Expedition across the continent. A peak in the Bridger range is named for her.
Saccharine, made from by-products of coal. 2-636
Saccharose, name for common sugar, 10-3416
Sachs, Hans, German author, 17-6268
Sack race, game, 6-2164
Sackville, Thomas
author of Gorboduc, 2-721
Sacramento. Beautiful capital of California. in the centre of a fruit-growing and farming district.
Picture, Sutter's Fort, 6-1923
Sacramento River. American river, rising near Sisson, California; flows into Suisun Bay. 600 miles.
Sacrum, end of backbone
reason for name, 5-1563
Sadi, *see* Saadi
Sadowa, Battle of, 11-3970
Safety
in rowboats, rule for, 14-5179
Question about. What does "safety first" mean? 10-3579
Picture. Stop, look and listen! 2-405
Safety-deposit vaults
Pictures, with notes, 6-2025-26
Safety devices, on elevators, 4-1218
Safety-lamp invented by George Stephenson, 5-1616
Safety-matches, *see* Matches
Safety valve, invented by Papin, 17-6398
Saffron, flower
Picture. meadow saffron (in color), 15-5612
Sagadahoc, Maine, attempted settlement, 2-544
Sagas, Scandinavian, 19-7009-10
Sage-brush. A dry, shrubby and bushy plant (botanical family, *Artemisia*), found on the dry and alkaline areas of the western United States. Some species grow as high as twelve feet. Though in appearance sage-brush resembles sage, it is not connected with that family of plants.
Saggers, in pottery-making, 5-1668
Sago. A starchy food obtained from the spongy and glutinous interior, or pith, of the trunks of several kinds of palm trees.
Saguenay River. *Picture*, 1-155
Sahara, Desert of, 6-2170
description of, 7-2416, 2421
huts in, 5-1657
travel in, 18-6808
Pictures, 7-2417; 18-6731, 6739, 6742
Saiga, animal, 4-1444
Sailfish. *Picture* (in color), 16-5786
Sailing
fastest record for day, ship Lightning, 11-3920
tacking, explanation of, 2-455
See also Boats; Ships
Sailor, Figure of
directions for making, 9-3254

Sailors
skill of early Newfoundland sailors, 8-2980
Poems about
Gray Swan, by Alice Cary, 6-2149
Henry Hudson's Last Voyage, by Henry Van Dyke, 11-4109
Inchcape Rock, by Robert Southey, 7-2527
Loss of the Royal George, by William Cowper, 1-324
Officer's Grave, by H. F. Lyte, 5-1781
Tom Bowling, by Charles Dibdin, 5-1781
Wreck of the Hesperus, by H. W. Longfellow, 1-103
Question about. Why does a British sailor salute the quarter-deck? 4-1354
Sailors' knots, *see* Knots
Saint (or *St.*), *see* name of saint
Saint, Thomas, and invention of sewing machine, 19-7212
St. Agnes' Eve
Poem about. St. Agnes' Eve, by Tennyson, 19-6874
St. Anthony, Newfoundland
Dr. Grenfell's mission, 7-2500
St. Augustine, Florida, 1-246
historic spots, notes and pictures, 18-6828
oldest settlement in the U. S., 18-6825
St. Barlaam, Monastery of, *Picture*, 14-4920
St. Bartholomew, Lake of, Bavaria
Picture, 12-4163
St. Bartholomew the Great, church in London, 16-5964, 5966
St. Bartholomew's Day, Massacre of, 10-3434, 3436
St. Bernard dogs, 2-710, 718
story of Barry, 16-5736
Pictures, 2-710; 16-5738; (gravure) 2-714
St. Calixtus, catacomb of, 2-576, 578
St. Christopher, island in West Indies
settlement by English and French, 19-7099
St. Croix, island, bought by U. S. from Denmark, 8-2672
See also Virgin Islands
St. Croix River, Canada, discovery, 2-679
St. Croix River, U. S.
Picture, 15-5283
St. Denis. Northern suburb of Paris, with flour and cotton mills, chemical and dye works, and manufactures of machinery. Here is a magnificent abbey, the burial place of most of the kings of France.
abbey, 17-6156
St. Domitilla, catacomb of, 2-576
St. Elias, Mt., discovery by Bering, 16-5789
height, 1-154; 7-2313
St. Etienne. Important industrial town in the second largest French coal-field, 36 miles west of Lyons. It has a great iron and steel industry, besides manufacturing silk, velvet and ribbons.
St. Francis Lake, Canada, 6-1960
St. Francis River. American river, rising in St. Francis County, Missouri; flows into the Mississippi. 460 miles.
St. Gall, Switzerland, monastery, 16-6002
Saint Gaudens, Augustus, American sculptor, 14-4936-37
Pictures
statue of Lincoln, 14-4932
Stevenson relief, 11-3899
St. George's Channel. Passage separating Wales from Ireland and connecting the Irish Sea with the Atlantic.
St. Germain-en-Laye, Treaty of
terms in America, 2-690-81
St. Gothard Pass. Highway through the Lepontine Alps between Switzerland and Italy. The railway from Lucerne to Milan is carried beneath it by a series of tunnels with a length of 9 1/4 miles. 6,935 feet.
St. Helena. British island and coaling station in the South Atlantic; area, 47 square miles; capital, Jamestown. Girdled by rugged cliffs rising from 600 to 2,000 feet sheer from the sea, it was the place of exile of Napoleon (1815-21).
account of, 9-3188
Napoleon sent there, 6-2208
Picture. Napoleon's burial-place, 9-3183
St. Helier. Capital and port of Jersey, with steamship communication with Southampton.
story about, 11-4092
Saint Jean-Pied-de-Port, France
Picture and note, 10-3439

GENERAL INDEX

St. John. Winter terminus of the Canadian Pacific Railroad, at the north of the St. John River, New Brunswick. A flourishing port, it has a fine harbor and docks, besides textile, leather and fishing industries.

St. John, island
bought by U. S. from Denmark, 8-2672
See also Virgin Islands

St. John River. American river, rising in Brevard and Osceola counties, Florida; flows into the Atlantic Ocean. 400 miles.

St. John River, Canada, discovery, 2-679

St. John's. Capital and only large town of Newfoundland, with a fine harbor. It has Anglican and Roman Catholic cathedrals, and is the centre of a great fishing industry.

St. John's-wort, flower

Pictures

common (in color), 14-4991

creeping (in color), 13-4879

St. John's-wort Family, in botany, 13-4873

St. Juste, Antoine

Picture, portrait, 6-2127

St. Kitts. British West Indian island forming with Nevis and Anguilla a Leeward Island presidency; area, 150 square miles; capital, Basseterre. Cacao, coffee, tobacco, coconuts and limes are produced, though the interior is hilly.

captured in 1624, 19-7099

St. Lawrence lowlands, Canada, 1-108

St. Lawrence River

* Great Lakes and the St. Lawrence, 6-1955-62
name, reason for, 2-678

rapids of, 6-1960

Picture, 7-2540

St. Louis. One of the greatest commercial centres in the U. S. 20 miles below the junction of the Missouri with the Mississippi, in Missouri. The river is crossed here by a bridge 2,225 feet long, connecting the city with East St. Louis. Finely built, the city has three cathedrals and two universities, but is famous chiefly for its great manufacture of tobacco, over 80,000,000 pounds of which are annually produced. Other industries include smelting, meat-packing, publishing, flour milling, foundries, and leather and clothing manufactures.

commerce and industries, 17-6046

Forest Park, note and picture, 15-5275

fur-trading centre, 18-6426

iron and steel industry, 17-6038

Jefferson memorial, note and picture, 17-6047

Picture, view from Mississippi River, 17-6047

St. Lucia, West Indies, 9-3190

St. Malo. Picturesque seaport of Brittany, France, surrounded by ancient towered ramparts. It has a considerable traffic with the Channel Islands and Southampton.

St. Mark's, Campanile of, Venice

building of, 4-1458

Pictures (gravure), 4-1465, 1466

St. Mark's Cathedral, Venice

description, 16-5718-19

history and description, 4-1456

Pictures

mosaics, 2-577, 579

views of the building (gravure), 4-1466-68;

16-5721-22

St. Mary's River. *Pictures,* 6-1961, 1963

St. Nicholas, magazine

Mrs. Dodge as editor, 14-5015

St. Omer. Old town of northern France, with a considerable agricultural trade and some manufactures. It has a magnificent church, once a cathedral, and remains of a 7th-century abbey.

St. Paul. Capital of Minnesota, on the Mississippi. Standing opposite Minneapolis, it is an important centre of the cattle and meat-packing trades, while its horse market is the largest in the United States.

made capital city in 1849, 17-6048

Pictures, 15-5281; 17-6037, 6048

Capitol (gravure), 18-6688

St. Paul's Cathedral, London

built by Sir Christopher Wren, 12-4356-58;

18-6491

Pictures, 8-3011; 12-4357

St. Paul's School, London

founded by Colet, 14-5250

St. Peter, Lake, Canada, part of the St. Lawrence river system, 6-1962

St. Peter's church, Rome, 17-6309-10

Pictures, 8-3011; (gravure) 17-6305, 6308

St. Petersburg, see Leningrad

St. Pierre. French island off Newfoundland forming part of the colony of St. Pierre and Miquelon. The cod fishery is important.

St. Sophia, church and mosque, Constantinople

* history and description, 16-5717-18
changed from church to mosque 1453.

13-4798, 4800

Pictures, 13-4807; 16-5714

St. Sulpice, church in Paris, 18-6498

St. Thomas, Virgin Islands, 19-7104

bought by U. S. from Denmark in 1917, 8-2672;
10-3593-94

Pictures, 10-3593, 3596

St. Valentine's Day

Question about: What is the meaning of St.

Valentine's Day? 16-5958

St. Vincent, West Indies, 9-3190

St. Vincent, Battle of, 1797. Engagement off Cape St. Vincent, Portugal, between the British under Jervis and a Spanish fleet which had left Cadiz to join the French at Brest. The British victory broke up the French plan of invasion.

Nelson at, 6-2202

Picture, Nelson and Spanish officers, 6-2205

St. Anne de Beaupré, Canada, 8-2956

Pictures, 8-2953, 2956

Saints

* Early leaders of the church, 8-2843-50

* Some famous monks, 13-4859-69

hymns written by, 12-4435

* stories of, 6-1991-98

Sakhalin, or Saghalien. Siberian island north of Japan, to whom the southern half was ceded by Russia in 1905. Fishing is the chief industry, but coal and oil are found.

Japan won half from Russia, 2-566

Sakkāra, Egypt, tomb of Thi, 14-5211

Picture, step pyramid (gravure), 14-5214

Saladin, sultan of Egypt and Syria

won Palestine from Christians, 7-2587

Picture, meeting with Richard the Lion-

hearted, 7-2589

Salal, shrub, 19-6939

Picture, with note, 19-6935

Salamanca, Spain, 14-5050

Picture, 14-5049

Salamanders

account of, 15-5456-58

superstitions about, 1-355

Pictures, 15-5457

Salamis, Battle of, 13-4584

description, 3-1078

Picture, Greek victors after battle, 3-1077

Salangane, bird, nests are edible, 9-3372

Salem. Capital of Oregon on the Willamette River. It is the seat of Willamette University. Region around has fruit, hop and wheat interests.

Salem, Mass., first settlement, 2-548

Pictures, 12-4154

Salerno. Ancient seaport city of southern Italy, at the head of the Gulf of Salerno. It has a beautiful 11th-century cathedral built by the Normans.

medical school in Middle Ages, 8-2724

Salic Law. Law of succession disallowing females the right to occupy the throne. The law is said to be based on a passage in the code of the Salic Franks of the 5th century.

Salicylic acid. A compound of carbon, hydrogen and oxygen found in many plants, especially in wintergreen and the sweet birch. This acid has a sweetish-sourish taste, is odorless, slightly soluble in water and very soluble in alcohol. It is used as an antiseptic, as a food-preservative and in the manufacture of dye-stuffs.

Salisbury, Robert Cecil, 3d Marquis of

Picture, portrait, with parents, 15-5616

Salisbury Cathedral, England, 16-5969

Pictures (gravure), 1-72; 16-5976

Salisbury Plain. An elevated plain lying north of Salisbury, Wiltshire, England, now used chiefly for military purposes. 20 miles long and about 15 miles broad, it contains Stonehenge, noted for its Druidical remains. Canada had a training camp here in 1914-15.

Saliva, description and uses, 6-1932

Sallowthorn, 14-5158

Sallust, Roman historian

Picture, portrait, 16-5907

Sally in our Alley, song, origin of, 10-3609

GENERAL INDEX

Salmon

- Atlantic, 15-5635-36
- catching of, 11-4053, 4061
- how caught by Eskimo, 7-2565-66
- contest with eagle, story, 10-3757
- eggs, number of, 15-5542
- Pacific, account of, and varieties, 15-5636
- rock salmon, *see* Dogfish
- Pictures*
 - cannery in British Columbia, 1-113
 - taking with nets, Pacific coast, 11-4061
- Salmon berry**, shrub, 19-6934, 6936
- Picture*, 19-6931
- Salmon Family** of fishes, 15-5635-37
- Salomon, Haym**, in Revolution, 19-7164
- Salonica**, or **Salonika**. A port and commercial centre of Greek Macedonia, exporting cereals, cotton, wool, tobacco and skins.
- as railway terminus, 14-4918
- Picture*, White Tower, 14-4920
- Salt** (rock salt, or halite, NaCl). A mineral colorless to white with a glassy lustre. It is usually found in crystallized form with the crystals perfect cubes. Rock salt may be obtained by sinking wells to reach brine springs, pumping out the brine and evaporating it; or it may be mined from the great salt deposits such as those in China or Galicia.
- beds, in England, 4-1402
- importance in diet, 6-2084
- in blood, 3-937-39
- in sea, 2-630; 6-2169
- amount in sea, 7-2539
- Sir Walter Raleigh extracted from sea, 14-4968
- lakes that are salty, 19-6841
- * mines, and manufacture, 3-925-27
- Michigan mines, 17-6040
- production in U. S., 9-3212
- use in glazing pottery, 5-1668
- Questions about*
 - How does salt melt snow? 12-4505
 - What makes the sea taste of salt? 1-75
 - Why do our tears taste of salt? 2-688
 - Why is salt damp when it is going to rain? 12-4506
- Pictures*, showing production, 3-924-33
- Salt Lake City**. Capital of Utah, with smelting, leather and tobacco industries. Noted for being the headquarters of the Mormons, it has a university and a cathedral.
- monument to sea-gull, 17-6288
- Temple Block, note and picture, 19-6844
- Salt of lime**, in cold and hot water, 13-4827
- Salton Sea**, California
- Picture*, desert near Sea, 7-2417
- Saltpetre**
 - mined in Mammoth Cave, 4-1300
 - Norwegian, how manufactured, 16-5948
 - obtained from Tamarugal and Atacama deserts, 7-2421
- Salts**, needed in our bodies, 6-2187
- Question about*. Where do plants get their salts from? 16-5740
- Saltwort**, plant, 14-5157-58
- black, 14-5162-63
- prickly, 14-5164
- Pictures*
 - black saltwort, 14-5163
 - prickly saltwort, 14-5164
- Saltykov, Michael**, Russian author, 19-6908
- Salvador**. Smallest but most populous Central American republic; area, 13,176 square miles; capital, San Salvador. Coffee is exported.
- description and products, 19-7112
- Salvage**. Term meaning the rescue of property from destruction, particularly by fire or total loss at sea. The word comes from the Latin *salvus*, safe.
- Salvarsan**, discovered by Paul Ehrlich, 15-5492
- Salzburg**. Ancient and beautiful Austrian city, on the Salzach. It has a cathedral modeled after St. Peter's at Rome and a Romanesque abbey church. This city was the birthplace of Mozart.
- Sam Slick**, by T. C. Haliburton
- comment on, 14-5105
- * quotations and summary, 10-3527-34
- Samaria**, ancient city of Palestine
- conquered by Sargon II, 2-655
- Samarkand**, Asiatic Russia, 16-5859
- Picture* and note, 18-6587
- Sambar deer**, animal, 4-1446; *picture*, 4-1440

- Samoa**. Island group in the mid-Pacific which was divided in 1899 between the United States and Germany. The German islands west of 171° West Longitude were allotted, 1920, to New Zealand as mandatory of the League of Nations and are now named Territory of Western Samoa. Area, about 1,260 square miles. American Samoa includes Tutuila, Manua and four other islands. Area, 102 square miles.
- * account of, 10-3592
- captured from Germany by New Zealand, 9-3298
- population, and nation ruling, 9-3188
- products, and character of natives, 9-3188
- R. L. Stevenson in, 8-2869
- under New Zealand and U. S., 7-2578
- Samothrace, Victory of**, statue, 12-4332
- Picture* (gravure), 12-4336
- Samoyede**, dog. *Picture* (gravure), 2-715
- Samphire**, plant, 14-5158
- marsh samphire, or glasswort, note and picture, 14-5164
- Pictures*
 - golden samphire (in color), 14-4981
 - rock samphire, with note, 14-5156
- Sampler**, directions for making, 19-7081-82
- Sampson, William Thomas**, rear-admiral commanded U. S. fleet, Santiago, 10-3590
- Samson Agonistes**, by Milton
- account of, 4-1242
- Samuel**, Hebrew prophet
- Picture*, Hannah delivers Samuel to Eli, 19-7156
- Samurai**, in Japan, 2-563
- San Antonio**. The largest city of Texas, a military post of the United States, and a fine resort for pulmonary patients. Market for live stock, cotton, wool and mohair.
- Alamo, story of, 18-6826, 6829
- Picture*, Alamo, 18-6829
- San Diego**, California, 19-6850
- Picture*, mission, San Luis Rey, 18-6829
- San Domingo**, former name of Haiti, 1-88
- San Francisco**. Commercial centre and port of the Pacific states, on a magnificent land-locked harbor in California. Approached by the Golden Gate, it is noted for its fine scenery. It has regular steam communication with China, Japan, Australia, Central America, etc. It exports silver, gold, quicksilver, wheat, flour, wool, etc., and has manufactures of boots and shoes, cigars, flour, iron and wooden articles. In the suburbs are the California and Stanford universities. San Francisco was much damaged by an earthquake and fire in 1906.
- Pictures*
 - Civic Centre, with note, 19-6847
 - Golden Gate Park, 9-3219
- San Giovanni, Church of**, Florence
- Ghiberti's gates, 5-1737-38
- San Joaquin River**. American river, rising in the Sierra Nevada Mountains, California; flows into Sacramento River. 350 miles.
- San José**. Capital of Costa Rica. It has a cathedral and is the centre of a rich agricultural region.
- San Juan**. Capital and chief port of Porto Rico, with a cathedral and a university. Sugar and coffee are exported.
- founded by Ponce de Leon, 1-242
- Picture*, market place, 19-7101
- San Juan Capistrano**, California
- Picture*. Spanish mission, 18-6829
- San Luis Potosí**. Cathedral and manufacturing city of Mexico, near great silver-mines.
- San Marco**, Venice, *see* St. Mark's Cathedral
- San Marino**. Miniature Italian republic in the Apennines; area, 38 square miles; capital, San Marino. It has kept its independence since 1631.
- San Martin, José de**, South American leader.
- 19-6864, 7036
- San Pedro**, part of Los Angeles, 19-6850
- San Philip**, ship in Spanish Armada, 11-3918
- San Rocco School**, Venice, ceiling by Tintoretto, 4-1464
- San Salvador**. Capital and largest city of the republic of Salvador. Owing to frequent earthquakes the cathedral and most of the buildings are built of wood.
- San Salvador**, island where Columbus landed, 19-7097
- San Sebastian**, Spain, 14-5050
- Sancho Panza**, Don Quixote's servant, 5-1632-35

GENERAL INDEX

- Sanctuaries for birds, see** Birds—sanctuaries
- Sand, George (Mme. Dudevant)**
friendship with Chopin, 19-6922
- Sand**
castles of, building, 12-4495-97; 17-6257
use in glass-making, 18-6746
use in preserving flowers, 11-3853
- Questions about*
Why did the sand get on the seashore?
17-6178
Why does a pool stay on sand and not in a garden? 15-5362
- Sand-flies**, account of, 17-6420-21
- Sand-glass**, how to make, 5-1651
- Sand-hoppers**, account of, 16-5956
- Sand lilies**, flowers, 18-6658
- Sandals**, first footwear, 18-6446
- Sandalwood trees**, in Hawaiian Islands, 15-5448
- Sanderling**, bird, 11-4012
Picture, 11-4011
- Sandham, Henry**, Canadian painter, 10-3700
- Sandman**
Poem about. Wee Willie Winkie, by William Miller, 2-736
- Sandpiper, see** Pike—sand
- Sandpipers**, birds, 11-4012
Pictures, 11-4011; 14-5019; (in color), 9-3281
- Sandri**, India
Picture, tope, 15-5478
- Sandstone**
description, 17-6386
how formed, 17-6178
- Sandwich Islands, see** Hawaiian Islands
- Sandwiches**
directions for making, 11-4015
recipes for various kinds, 9-3376
- Sangallo, Antonio da, the Younger**, Italian architect
and the Farnese Palace, 17-6300
and St. Peter's, Rome, 17-6309-10
- Sangallo, Giuliano da**, Italian architect
plans for St. Peter's, Rome, 17-6309
- Sanger**, fish, *see* Pike—sand
- Sangster, Charles**, Canadian poet, 14-5106
See also Poetry Index, for poems and notes
- Sankey, Ira David**, evangelist and singer, 12-4438
Picture, portrait, 12-4439
- Sannicchiele, Michele**, Italian architect, 4-1458
- Sanskrit language**, 15-5461
- Sanskrit literature**, 15-5461
- Sansovino, Andrea**, Italian sculptor, 13-4607
- Sansovino, Jacopo Tatti**, Italian architect and sculptor, 4-1458; 13-4607; 17-6311
- Sant, James**, artist
Picture. Dick Whittington Listening to Bow Bells, 2-759
- Santa Anna, Antonio Lopez de**, Mexican leader, 19-7136, 7138
- Santa Barbara**. Pacific coast resort in southern California, possessing a fine bathing beach.
mission, note and picture, 6-1924
Picture
Carmelite convent (gravure), 18-6686
- Santa Clara Valley**, California, note and picture, 18-6433
- Santa Claus**
named from St. Nicholas, 6-1990
origin, 17-6102-04
St. Nicholas, story of, 6-1997
See also Christmas
Poem about. He Comes in the Night! 17-6111
- Santa Cruz Islands**
dangerous natives, 9-3304
Picture, native houses, 9-3303
- Santa Fé**. Capital of New Mexico and an old Spanish city, much changed since the American occupation. Nearby are interesting remains of the Pueblo Indians, and also of old mission churches. Stock raising, mining, and the manufacture of Indian blankets are important industries.
founded, 1605, 1-246
National forest, 15-5577
second oldest town in United States, 2-543
Picture. Old Palace of the Governors, 18-6427
- Santa Fé**. Cathedral city of Argentina, exporting timber, cattle and wool.
- Santa Fé Trail**, 18-6430, 6432
- Santa Maria**, ship of Columbus, 11-3916
Pictures, 1-86; 11-3913
- Santa Maria del Fiore (the Duomo)**, cathedral in Florence, 5-1738-39; 17-6162
- Santa Maria del Fiore (continued)**
Pictures. Brunelleschi's dome (gravure), 5-1746-47
- Santa Maria Maggiore**, church, Rome, 16-5716
mosaic, design of, 2-580
- Santayana, George**, author, 14-5012
- Santiago**. Ancient city of Galicia, Spain, with a fine Romanesque cathedral. Here is the shrine of St. James, a famous place of pilgrimage in the Middle Ages.
- Santiago, Battle of**, 10-3590
- Santiago de Chile**. Capital and largest city of Chile, 68 miles from its port of Valparaiso. One of the finest cities in South America, it has a historic cathedral and great commercial activity.
Pictures, 19-7049
- Santiago de Cuba**. Port and cathedral city at the southeast end of Cuba, with iron-foundries and tobacco factories and a large export trade.
- Santo Domingo**. Capital of the Republic of Santo Domingo, with a 16th-century cathedral and a large sugar and coffee export trade.
Picture, 19-7097
- Santo Domingo**, republic on island of Haiti
rare stamps, 16-5887
See also Haiti
- Santos**. Brazilian coffee port, the chief outlet of the state of São Paulo.
Picture, 19-7048
- Santos-Dumont, Alberto**, Brazilian aeronaut, 1-168, 172
- São Paulo**. Second largest city of Brazil, capital of the state of São Paulo. A great commercial and manufacturing centre, it has a cathedral and many fine buildings.
Pictures, 19-7048
railway station, 2-420
- Saone**, French river, 11-3819
Picture, 11-3819
- Sap in plants**
ascent of, 2-506
circulation in trees, 11-4094
necessary for growth of buds, 2-504, 506
- Sapir, Edward**, Canadian author, 14-5109
- Sapphire**, account of, 19-7230
Picture (in color), facing 19-7225
- Saprophytes**, plants, 1-332
- Sapsuckers**, woodpeckers
red-shafted, account of, 14-5134
yellow-bellied, account of, 13-4763-64
Picture, yellow-bellied sapsucker (in color), 13-4841
- Saracen Empire and the Crusades**, 7-2583-85
- Saracens**
architecture, *see* Architecture, Saracenic
attacked Byzantine empire, 13-4797
- Saragossa**, Spain, 14-5050
in Peninsular War, 14-5119
Maid of Saragossa, story of, 14-5119
Picture, cathedral and bridge, 14-5047
- Sarajevo**. Capital of Bosnia, Jugo-Slavia, with two cathedrals and 100 mosques. It manufactures tobacco and fancy wares. On June 28, 1914, Archduke Francis Ferdinand was assassinated here.
- Saranac Lake**, New York
Picture, Sanitarium, 1-229
- Saratoga, Battle of**, 4-1168
- Saratov**, Russia, 16-5858
- Sarawak**, Borneo, 9-3186
- Sarcophagus**. A large coffin, usually of stone, which is not put in the ground but is placed where it can be seen. Nowadays sarcophagi are seldom used except for the burial of distinguished persons.
- Sard**, semi-precious stone
Picture (in color), facing 19-7225
- Sardines**
account of, 16-5776
Pictures, 16-5779
Picture (in color), 16-5782
- Sardonyx**, account of, 19-7229
Picture (in color), facing 19-7225
- Sargasso Sea**, description of, 7-2542
Question about. What and where is the Sargasso Sea? 10-3733-34
- Sargasso weed**, in Atlantic Ocean, 4-1276, 1278
- Sargent, John Singer**, American painter, 10-3451-52
Pictures
Henry G. Marquand (gravure), 10-3460
La Carmencita (gravure), 10-3460
Mrs. Wertheimer (gravure), 10-3460

GENERAL INDEX

Sargent, John Singer—*Pictures (continued)*

- Lord Ribblesdale (graveure), 10-3460
 Portrait of James Whitcomb Riley, 13-4821
- Sargon II**, king of Assyria, 2-655
 conquered kingdom of Israel, 19-7156
 palace of, 14-5209
- Sarsaparilla**, drug, 8-2911
- Sarsaparilla**, plant
 wild, description, 18-6568, 6570-71
Picture
 wild sarsaparilla, 18-6571
Picture (in color), 8-2999
- Sarsfield, Patrick**, Irish leader, 8-2935
- Sartain, William**, American painter, 10-3455
- Sarto, Andrea del**, Italian painter, 3-958
Picture, St. John the Baptist (graveure), 3-964
- Saskatchewan**, Canadian central prairie province; area, 252,000 square miles; capital, Regina. Besides rearing live-stock, it is the greatest wheat-growing province in the Dominion, and its development has been enormously rapid. Saskatoon is an educational centre.
 became province of Dominion of Canada, 4-1490
- Saskatchewan River**, Canadian river rising in the Rocky Mountains. It flows eastward through Alberta, Saskatchewan and Manitoba and empties into Lake Winnipeg. 1,265 miles.
- Saskatoon**, Agricultural and educational centre in Saskatchewan, Canada, on the South Saskatchewan River.
- Sassafras**, medicinal plant
 account of, 8-2911; 13-4640
Picture, in winter, 13-4641
- Sassanians**, Persian dynasty, 3-918
- Sassoon, Siegfried**, English poet, 12-4234
See also Poetry Index, for poem and note
- Satellites** in astronomy, 4-1450
- Satin bower birds**, *see* Bower birds
- Satire**, use by poets, 4-1358
- Saturday**, how named, 12-4203
- Saturn**, god, 9-3226
- Saturn**, planet
 * account of, 10-3410-12
 discoveries of Huygens, 1-283
 distance from earth, measured by speed of train, 9-3034
 distance from sun and length of year, 9-3180
 rings of, 10-3411
Pictures, 10-3411-12
 view from one of its moons, 10-3413
- Saturnalia**, Roman festival of Saturn, 9-3226
- Satyrs**, imaginary creatures, 1-354; 9-3236
- Sauba ants**, 17-6354
- Sault Ste. Marie**, County seat of Chippewa, Michigan, on the St. Mary's River. The canal here is the largest ship canal in the world. The International Bridge spans the rapids of the river, connecting the city with its Canadian namesake.
- Sault Ste. Marie**, Manufacturing town of Ontario, Canada, on the ship canal connecting Lakes Huron and Superior. It is often called "Soo."
- Saunders, Charles E.**, developed varieties of wheat, 4-1470-71
Picture, portrait, 4-1471
- Saunders, Margaret Marshall**, Canadian author, 15-5373
- Saunders, William**
 developed varieties of wheat, 4-1470
- Savage, Edward**, American painter
Picture, painting of George Washington and family, 3-971
- Savannah**, Cotton port in Georgia exporting also lumber, cottonseed oil and resin. Historically one of the most interesting cities of the South.
 founding of, 2-554
- Savannah**, first ship using steam to cross Atlantic, 17-6402
Picture, 17-6403
- Savannah River**, American river, formed by the Tugaloo and Kiowee rivers, South Carolina; flows into the Atlantic Ocean. 450 miles.
- Savannahs**, definitions, 6-2171
- Save**, River rising in the Alps of Jugo-Slavia and flowing into the Danube near Belgrade. On its banks Zadar, capital of Croatia. 450 miles.
- Saving**, *see* Theft and saving
- Savonarola, Girolamo**, life, 13-4868-69
Picture, bonfire of vanities, 13-4867

Savoy, Lying south of the Lake of Geneva, Savoy is the Alpine district of France, which contains Mont Blanc and the resorts of Chamonix and Aix-les-Bains.

won for France, 10-3573; 12-4412

Saw-wort, flower

Picture (in color), 14-4985

Sawfishes, 16-5896

Picture, Japanese sawfish, 16-5897

Sawflies, 17-6232

Pictures, 17-6229

(in color), facing 18-6721

Saws

how to use, 1-233

use in lumbering, 16-5989, 5996

Question about, Of what use is the notch at the top of a big saw? 15-5620

Saxe, John Godfrey, *See* Poetry Index, for poem and note

Saxifrage

early, description, 17-6275

mossy, note on, 15-5603

yellow or mountain, description, 15-5602

note on, 15-5603

See also Saxifrage Family

Pictures

mossy saxifrage, 15-5603

yellow saxifrage, 15-5603

Pictures (in color)

meadow saxifrage, 14-4994

pepper saxifrage, 15-5612

yellow saxifrage, 16-5881

Saxifrage Family, in botany, 13-4874

alpine plants belonging to, 15-5602

fruits belonging to, 6-2064

of Pacific coast, 19-6930, 6932

Saxons, Teutonic tribe

early boats and ships, 11-3914

where settled in England, 4-1429

Saxony, Most populous German state, lying between Prussia and Czecho-Slovakia. It is a mining and manufacturing country, with important textile, paper, engineering, chemical, pottery, glass and porcelain industries; coal, lead, zinc, iron and cobalt are mined. Dresden, the capital, Leipzig and Chemnitz are the largest cities.

Saybrook, colony, Conn., 2-555

Scabbard fish, 16-5900

Scabious, flower

Picture (graveure), 19-7174

Pictures (in color)

devil's-bit scabious, 14-4983

field scabious, 15-5400

Scad, fish. *Picture* (in color), 16-5784

Scaldfish, *Picture* (in color), 16-5783

Scalds, treatment for, 16-5980

Scale insects, 17-6078

Scales, Musical, *see* Music—scales

Scallops, molluscs, description of, 19-6888

Pictures, 19-6882

shells (in color), 19-6893-94

Scandinavia, * account of, 15-5291-5307

See also Denmark; Iceland; Norway; Sweden

Scandinavian literature, * 19-7009-14

Scandinavian painting, *see* Painting, Scandinavian

Scantlebury, Elizabeth, *see* Poetry Index for poem and note

Scapa Flow, Wide roadstead among the Orkney Islands which served as the chief base of the British Navy during the World War, 1914-18.

Scapegoat, An innocent person who is blamed for the misdeed of another. In ancient Jewish times, on the Day of Atonement, the chief priest symbolically laid the sins of the people upon a goat, called the scapegoat, and this animal was driven into the wilderness. Our present use of the word harks back to the ancient Jewish ritual.

Scar, how differs from skin, 4-1420

Scarabs, sacred beetles, 18-6628

Scarf, tied-and-dyed, how to decorate, 1-232

Scarlet tanagers, *see* Tanagers

Scenarios, of moving pictures, 18-6597

Schamyl, Caucasian leader, 15-5378

Scheldt, River of France and Belgium draining practically all Flanders. Rising near Le Câtelet, it passes Cambrai, Valenciennes, Tournai, Ghent, Antwerp and Flushing, flowing into the North Sea through several wide channels in Holland. Navigable by a skillful arrangement of locks for 210 miles, it forms with its tribu-

GENERAL INDEX

Scheldt (continued)

taries and innumerable canals an immense system of waterways. 267 miles.

Schenectady, N. Y., burned in 1690, 3-778

Scheveningen, Holland

Picture, beach, 15-5565

Schiaparelli, Giovanni Virginio, astronomer, 1-286

Schiller, Johann Christoph Friedrich von, German author, 17-6412

Picture, portrait, 17-6414

Schleswig, taken by Prussia, 11-3970

Schleswig-Holstein, political control, 18-6459

Schliemann, Henry, archaeologist

discoveries at Troy and Mycenae, 2-447

Schmidt, Johannes, study of eels, 15-5637

Schneckenburger, Max, German song-writer, 10-3612

See also Poetry Index for poem and note

Schnitzer, Eduard, see Emin Pasha

Schoeffer, Peter, aided Gutenberg in invention of printing, 9-3383

Schoharie Reservoir, description, 14-5056

Schomburgk, Sir Robert, named Victoria regia, 9-3266

Schönberg, Arnold, German musical composer, 9-1753

Schongauer, Martin, German painter and engraver, 4-1344

Picture, portrait, by Hans Burgkmair, 4-1346

School mistress, game, 8-2744-45

School paper, how to start, 15-5507-09

School teachers in American colonies, 3-966, 967

Schools, see Education

Schooner, rig of, and picture, 11-4086-87

Poem about. Wreck of the Hesperus, by H. W. Longfellow, 1-103

Schrader, Julius, German painter

Picture, Queen Elizabeth signs the Death Warrant of Mary Queen of Scots (gravure), 5-1824

Schroder-Stranz, Lieut., arctic explorer, 13-4722

Schubert, Franz, Austrian musical composer, 19-6920-21, 7076

Pictures

portrait, 19-6912

imagining the Erl-king, 19-7075

Schuckburg, Dr., introduced air of Yankee Doodle, 18-6512

Schumann, Robert, German musical composer, 19-6921, 7149-50

Picture, portrait, 19-6912

Schuyler, Philip, American soldier and statesman. Served in French and Indian War, in Continental Congress and in Revolution; twice U. S. Senator from New York. His daughter Elizabeth married Alexander Hamilton.

delayed march of Burgoyne, 4-1168

Picture, portrait, 4-1165

Schwatka, Frederick, arctic explorer, 13-4714

Schwerin, Old German cathedral city, with an ancient palace; capital of Mecklenburg-Schwerin.

Sciæna, fish. *Picture (in color), 16-5781*

Science

Agassiz's influence on study, 19-7053

Aristotle's influence, 16-5919

discoveries with microscope, 13-4669-71

See also Medicine, history of; Scientists; also names of sciences, as Chemistry, Geology

For list of articles on Applied Science, see 20-7624-32; for General Science, see 20-7613-23

Scientists

* Some European men of science, 2-589-96

* Some men who loved nature, 19-7051-58

For main articles on Scientists, see 20-7651

Scillas, flowers, 17-6128, 6130

Scilly Islands. Group of 36 islands and about 100 islets lying about 25 miles from Land's End, Cornwall, England. The climate is mild and equable, large quantities of fruit, flowers and vegetables being grown for the English market.

Scipio Africanus, Major, Roman general

conquered Carthage, 4-1196

life and conquests, 4-1364

Scipio Africanus, Minor, Roman general

campaigns of, 4-1196

Scissorbill, bird, name for skimmer, 11-4122

Scissors, how made, 4-1206, 1307, 1312-13

Pictures, showing manufacture, 4-1312-13

Scopas, Greek sculptor, 12-4330-32

Picture, head of Heracles in style of Scopas (gravure), 12-4336

Scorched spots, how to remove, 2-618

Scoresby, William, arctic explorer, 8-2986

Scorpion fish

Pictures (in color)

crested scorpion fish, 16-5788

poison scorpion fish, 16-5785-87

Scorpion grass, name for forget-me-not, 16-6012

Picture (in color), 13-4879

Scorpions, description, 16-6011-14

Pictures, 16-6019

Scot-free. Free from payment, scot being an Anglo-Saxon word meaning "payment." To get off scot-free is to get out of a difficulty at no cost to oneself.

Scotch oatcakes, 1-372

Scoters, ducks. *Picture (in color), 9-3284*

Scotland, Northern country of Great Britain; area, 29,796 square miles; capital, Edinburgh. It comprises the Orkney, Shetland and Hebridean Islands, and has three distinct physical divisions—the Southern Uplands, Central Lowlands and Northern Highlands, which contain the Grampians and Ben Nevis (4,406 feet). The principal river is the Clyde, in the basin of which is one of the world's greatest industrial regions, with its centre in Glasgow. The Tay and Spey, however, are the longest rivers, while Edinburgh stands on the Forth, and the Tweed has a famous woolen industry. Of the many lakes Loch Lomond is the largest in Great Britain. Scotland has important coal, iron, fishing, ship-building, textile, jute and distilling industries, but the Lowlands are the only thickly populated part. Among the largest towns are Dundee, Aberdeen, Paisley and Greenock. There are 33 counties.

* **Bonnie Prince Charlie**, 15-5639-44

coronation stone, taken to England, 5-1680

fiction of, 11-3897-98

Highlands, clans and chiefs, 12-4205

history

* **Kings and Queens of Scotland**, 12-4205-14

Covenant, and persecutions under Charles

II, 2-441

Jacobite rebellion, 15-5639-44

union with England in Anne's reign, 6-1981

Wars with England, 13th and 14th centuries.

5-1680

national emblem the thistle, 12-4208; 17-6181

songs of

A Man's a Man for A' That, by Burns, 12-4474

Annie Laurie, by Douglas, 1-326

Auld Lang Syne, by Burns, 17-6380

Bonnie Jean, by Burns, 6-2246

Canadian Boat Song, 9-3271

The Hills of Skye, by McLennan, 10-3480

Jock of Hazeldean, by Scott, 3-847

John Anderson, by Burns, 18-6798

Lochinvar, by Scott, 12-4471

Maclean's Welcome, 15-5641

My Heart's in the Highlands, by Burns,

4-1382

Over the Sea to Skye, 15-5643

Red, Red Rose, by Burns, 9-3274

Scots, Who Hae wi' Wallace Bled, by Burns,

2-738

Wae's Me for Prince Charlie, 15-5643

We'll hae Nane but Highland Bonnets Here.

by MacLagan, 17-6254

story of, Grizel Hume and the Covenanters,

2-441-43

townspeople losing height and weight,

7-2425

writers of songs, 10-3609-10

Poems about

Cotter's Saturday Night, by Burns, 13-4597

Cuddle Doon, by Anderson, 11-4116

Home No More Home to Me, by Stevenson,

9-3110

King Bruce and the Spider, by Cook, 15-5521

Lay of the Last Minstrel: extract, by Scott,

17-6377

Lord Ullin's Daughter, by Campbell, 2-737

Lullaby of an Infant Chief, by Scott, 2-736

Marmion: extract, by Scott, 12-4212

Wee Willie Winkie, by Miller, 2-736

Scotland Yard, Headquarters of the London Metropolitan police, on the Victoria Embankment. The original site was Great Scotland Yard, where once stood a palace used by the kings of Scotland when visiting London.

Scots, invaded England after Romans left,

4-1324

GENERAL INDEX

- Scott, Duncan Campbell**, Canadian poet, 14-5108
See also Poetry Index for poem and note
- Scott, Frederick George**, Canadian poet, 14-5108
See also Poetry Index for poems and notes
- Scott, G. H.**, aviator, 1-179
- Scott, Hugh Stowell**, *see* Merriman, Seton, pseudonym
- Scott, Lady John**, wrote version of *Annie Laurie*, 10-3609
- Scott, Robert Falcon**, English explorer, expedition in *Discovery*, 14-5092-93
 experience with whales, 6-2220
 last trip, and death, 14-5096, 5098
Picture, portrait, 14-5089
Pictures, with notes, 14-5095, 5099
- Scott, Sir Walter**
 * Scott and his stories, 7-2625-32
 * Waverley novels, summaries of, 11-4069-78
 as a song-writer, 10-3611
 friendship for Marjorie Fleming, 10-3717
 original of Jeannie Deans, in *Heart of Midlothian*, 12-4224
 * poetry of, 7-2489-90
 story about, Sir Walter Scott and some of his pets, 14-5265
See also Poetry Index for poems and notes
 * *Pictures*, portraits, and scenes from novels, 7-2625-31
 portraits, 7-2488; with parents, 15-5616
- Scott, William Bell**, British painter
Picture, Egfrid and Cuthbert, 8-2847
- Scott, Winfield** (1786-1866). American soldier, born in Virginia. He entered the army in 1808 and distinguished himself in the War of 1812; became commander-in-chief in 1841; invaded Mexico; Whig candidate for president, 1852; retired from army, 1861.
 and War of 1812, 5-1705
 in Mexican War, 6-1919-20
Picture, portrait, on horseback, 6-1919
- Scottish Chiefs**, by Jane Porter
 * quotations and summary, 12-4319-26
- Scottish Songs**, *see* Scotland—songs
- Scottish Terrier**, 2-718
Picture (graveure), 2-716
- Scrap-box**, directions for making, 6-2262-63
- Screamers**, birds, 11-3890
Picture, 11-3889
- Screech owl**, 13-4762
Picture, 13-4762
- Screen**, term in photo-engraving, 3-1065
- Screens**, fire, how to make, 11-3858-59
- Screw-propellers**, of ships, 12-4416
 contest with paddles, 17-6401
 invented by Ericsson, 17-6402
- Screwdriver**, tool, how to use, 1-233
 renewing edge of, 2-627
- Screws**
 use, removal, rust-prevention, 11-4079-80
- Scriabine, Alexander Nikolaevich**, Russian musical composer, 19-7153
- Scrolls**, old form of books, 3-1156
- Scrooge**, the old man named by Dickens,
 * 17-6115-21
- Scudder, Janet**, American sculptor, 14-4940
Picture, Frog Fountain, 14-4935
- Sculpture**
 * First sculptors, 11-3873
 canon, or rule for, statue of Polyclitus, 12-4218
 European, from 1800 on, 13-4856, 4858
 Græco-Roman, 12-4468
 in architecture of India, 15-5470-72
 influence of Christianity, 12-4470
 story about, 5-1689-90
 terror and suffering, unsuitable subjects, 12-4460
See also following entries on sculpture of various countries and periods, as *Sculpture*, Assyrian; *Sculpture*, Gothic
Poem about. To Alfred Laliberté, by Isabel McCaw, 10-3483
Pictures, ancient period, 12-4461-66
- Sculpture, Ægean**, 11-3987-88
- Sculpture, American**, 14-4933-40
Pictures, 1-266; 3-1038; 4-1174; 7-2525; 8-2703; 11-3997; 14-4932-33, 4935, 4937, 4939; 17-6291
- Sculpture, Assyrian**, 2-654-56; 11-3875-76
Pictures, 2-647, 649, 651, 657; (graveure), 11-3879-80
- Sculpture, Byzantine**, 12-4470
Picture, 12-4469
- Sculpture, Canadian**, 14-5075
Pictures, 14-5075-80
- Sculpture, Egyptian**, 3-815-16; 11-3874-75; 14-5211
Pictures, 3-816-17, 819; 11-3873; (graveure), 11-3877-78
- Sculpture, English**, 13-4853-58
Pictures, 13-4585, 4853-58
- Sculpture, French**, 13-4699-4706
Pictures, early sculpture to the present, 13-4699-4705
- Sculpture, German**, 13-4699-4700
- Sculpture, Gothic**, 12-4470
 in England, 13-1853
Pictures, 12-4469
- Sculpture, Greek**
 * account of, 11-3987-94; 12-4215-22, 4327-32
 * from time of Alexander the Great, 12-4459-68
 materials, 11-3990
Pictures, 3-1068, 1069, 1071, 1073, 1079; (graveure), 12-4333-36
See also starred articles above
- Sculpture, Italian**, 13-4603-08
 in Florence, 5-1735-40
 in Venice, 4-1459-60
Pictures
 in Florence (graveure), 5-1741-45, 1748
 of best period (graveure), 13-4603-16
- Sculpture, Persian**, 11-3876
- Sculpture, Roman**, 12-4468, 4470
Pictures, in Britain, 4-1318-19
- Scuppers** of a ship, 14-5004
- Scups**, fish, 16-5780
- Scurvy**, prevented by lime juice, 6-2058, 2060
- Scurvy-grass**, plant, note and picture, 15-5607
- Scutari**. City of Asia Minor, standing opposite Constantinople.
- Scutari**. Largest city of Albania, trading in cotton, wool and skins.
- Scylla**, rock, 17-6284-85
 in mythology, 9-3236
- Scythe**. A farm implement consisting of a long curved blade attached to a bent wooden handle called a snath, with two hooks which are grasped by the hands of the user. The earliest form of reaping machine.
- Scythians**, hordes of Asia
 attacked the Medes, 2-658
- Sea**
 * Rivers and the seas, 7-2539, 2542
 * animal life, 15-5539-42
 * crabs, lobsters, etc., 16-5949-56
 * Fishes of deep sea, 16-5893-5900
 * Fishes of shallow seas, 16-5772-80
 how sustained, 1-120
 * Mollusc family, 19-6883-92
 * queer creatures, 19-7059-69
 * seals, walruses, etc., 3-957-1004
 skeletons made mountains, 7-2314
 * whales and related animals, 1-356, 358; 6-2213-20
See also Sea-anemones
 Atlantic resorts, northern U. S., 12-4146, 4148
 beds of, grown into mountains, 7-2314
 colors seen under water, 11-3841
 currents of, 7-2542
 cause, 16-5960
 * depth, 3-875-76; 7-2539
 food from, *see* Fish and Fisheries
 in mythology, 9-3235-36
 life in, prehistoric
See list of main articles under *Geology*, 20-7614; *also* *Physical Geography*, 20-7615
- * Nature's wonderful family, 1-91-97
 plant life, 4-1276, 1278
 absence of, in deep sea, 4-1278
 seaside, flowers of, 14-5157-65
 regulates temperature of earth, 8-2664, 2666
 salt contained in, 2-630; 6-2169
 songs of, and their writers, 10-3606, 3608
 square miles on earth's surface, 6-2169
 stories about
 Destruction of a ship by a whale, 4-1189-90
 heroism of Grace Darling, 3-1035
 Moby Dick, 15-5401-08
 Treasure Island, 13-4645-53
 Two Years before the Mast, 9-3357-64
See also Antarctic regions; Arctic regions; Cables (submarine); Mermaids; Mermen; North Pole; Sailors; Ships; South Pole; Submarine boats; Tides
- Poems about*
 At Sea, by Allan Cunningham, 14-5128

GENERAL INDEX

Sea—Poems about (continued)

- Break! Break! Break! by Tennyson, 6-2151
 Full Sea Rolls, by W. E. Henley, 8-2764
 Lile on the Ocean Wave, 4-1383
 The Sea, by Barry Cornwall, 19-6871
 Stream and the Ocean, by Victor Hugo, 10-3741
- Questions about**
 Can fresh water be found in the sea? 2-584
 Does the moon pull the sea? 2-583-84
 How deep is the sea? 3-875-76
 How do we know what is at the bottom of the sea? 12-4399
 How does oil make a rough sea calm? 1-188
 How much water is there in the sea? 10-3578
 Is there any color in the sea? 11-3841
 Is there gold in the sea? 13-4594-95
 What causes the change in color of the sea? 6-2124
 What makes the currents which flow through the sea? 16-5960
 What makes the sea roar? 9-3102
 What makes the sea taste of salt? 1-75
 What parts of the ocean are known as the doldrums? 7-2487
 Why does not sea-water make fishes thirsty? 7-2360
 Why does the sea never seem to be absolutely still? 14-5220
 Why is it that the sea does not freeze? 11-3978
- Pictures**
 cable covered with plants and animals, 12-4298
 See also all starred articles above
- Sea-anemones**, 19-7066-68
 and hermit crab, with pictures, 16-5952-53
- Questions about**
 Can a sea-anemone eat a creature bigger than itself? 5-1753
 How long does a sea-anemone live? 5-1753
 Picture, with hermit crab, 16-5953
 Pictures (in color), 19-7061-64
- Sea-birds** and their inland kin, * 11-4121-30
- Sea-bishop**, kind of merman, 1-359
 Picture, 1-355
- Sea-blite**, plant, 14-5158, 5164
 Picture, 14-5164
- Sea-brems**, fishes, 16-5775
 Pictures, 16-5779; (in color), 16-5783
 black sea bream (in color), 16-5784
- Sea-buckthorn**, 14-5158
 Picture, 14-5164
- Sea-campion**, 14-5158
 Picture, 14-5263; (in color), 14-4982
- Sea-cows**, see Manatees
- Sea-cucumber**, 19-7069
 Picture, 19-7067
- Sea-eagles**, see Eagles
- Sea-elephants**, 3-1002
 ancient belief about, 1-356
 Pictures, 3-999, 1004
- Sea-eryngos**, see Sea-hollies
- Sea-grass**, seaweed, 4-1276
- Sea-gull**
 Question about. Where is there a monument to the sea-gull? 17-6288
 See also Gulls
- Sea-hollies**, shrubs, 14-5158, 5163
 Picture, 14-5163
- Sea-horse**, fish, 16-5778
 Pictures, 16-5777; (in color), 16-5784
- Sea-kale**, vegetable food, 7-2616
- Sea-lavender**, 14-5162
 Picture, with note, 14-5156
- Sea-lions**
 * Great sea hunters, 3-997-1004
 ancient belief in mail of, 1-356
 Pictures, 3-999, 1001, 1004
- Sea-lizard**, 14-5232
- Sea-lyme**, grass, note and picture, 10-3656
- Sea-milkwort**, 14-5162-63
 Picture, 14-5163
- Sea-oats**, grass, 19-7095
 Picture, 19-7085
- Sea-parrot**, see Puffin
- Sea-pinks**, or Sabbatias, 14-5162, 5165
 note on, 15-5607
 Pictures, 15-5607; (in color), 15-5609
- Sea-reed**, grass, note and picture, 10-3654
- Sea-robins**, fishes, 16-5776
- Sea-serpent**
 Picture, attacking a ship, 1-356

Sea unicorn, superstition about, 6-2218

- Sea-urchins**, 19-7069
 Pictures, 19-7059, 7067
- Sea View**, Staten Island tuberculosis hospital, 15-5622, 5626
- Sea voyages**
 * English seamen, Elizabethan period, 14-4959-71
- Sea Witch**, clipper ship, 11-3919
- Sea-worms**. Picture, 19-7145
- Sealing-wax**. A mixture of shellac and resin, melted with turpentine and colored in different colors. It melts easily under slight heat, but hardens rapidly when the heat is withdrawn, so that it takes and keeps the impression of a seal. Gummied envelopes have done away with the old need of sealing-wax, but for registered or important documents it is still used.
- Seals**, animals
 * Great sea hunters, 3-997-1004
 hunted by Eskimos, 7-2566
 of Alaska, 16-5792
 Pictures, 3-997-1004; 18-6436
 group in museum, 18-6621
- Sealskin**, 3-998, 1000
- Seams**, French, how to make, 1-338
- Seaplane**, see Hydroplane
- Searchlights**, 16-5940
- Sears**, Edmund Hamilton, hymn-writer, 12-4438
- Seashore**
 animal life, 16-5773
 See also Sea—animal life
 flowers of, 14-5157-65
 games for, 17-6257-58
 Question about. Why did the sand get on the seashore? 17-6178
- Seasons**
 * Why the seasons come and go, 8-2791-94
 caused by earth's motion, chart and explanation, 1-18
 explanation of, 1-238-39
 relation to life of plants, 2-503-04
 Picture, decorative panels, children playing, 1-237
- Seat** for garden, how to make, 10-3506-07
- Seattle**. Pacific seaport in the state of Washington. Lumber, wheat, fish and gold are among its exports, and it is the chief centre of trade with Alaska. Shipbuilding is important. It is the gateway to a rich, agricultural district.
 harbor of, 19-6846
 Pictures, 19-6847
 Volunteer Park, 9-3217
- Seaweeds**, account of, 10-3721-22
 colors, reason for, 10-3722
 description, 3-882; 14-5165
 early form of plant life, 3-881
 In Sargasso Sea, 10-3734
 making a collection, directions for, 15-5593-94
 roots for anchorage, 2-613
 structure, 4-1276
 tallest plants in world, 9-3262
 used to foretell weather, 10-3625
 varieties of, 4-1276
- Questions about**
 How does seaweed tell us what the weather is going to be? 8-2718
 Is the knob on the seaweed filled with air? 4-1233
 Why is seaweed used as a fertilizer? 2-587
 Pictures, 15-5592
 how young plants are produced, 3-883
 showing great size, 3-880
- Sebago**, salmon, 15-5636
- Sebastopol**, or Sevastopol, Russia
 siege of, 7-2299
 Picture, 16-5853
- Secession**. In American history, the withdrawal of a state from the Union. Actually there has never been a real secession, as the action of the Southern states in 1860 was unsuccessful.
- Secret ink**, how to make, 2-626
- Secret Service**. Government department closely connected with the police. From the nature of the work the details are not revealed to the public.
- Secretary-bird**, 10-3760
 Picture (gravure), 10-3762
- Sedan**, German victory at, 10-3573; 11-3972
- Sedges**, 10-3526
 white-bracted sedge, 19-7088
 Picture
 white-bracted sedge, 19-7087

GENERAL INDEX

Sedition laws, U. S., under John Adams, 5-1702
Sedums, plants, 19-7171
See also Stonecrop
Picture (gravure), 19-7180
Seeds
 arrangement in fruit of plant, and distribution, 3-1014, 1016
 development, in wheat, with picture, 5-1754
 germination
 of wheat, with pictures, 4-1472-73
 first step in plant growth, 2-504
 formation of, 2-506
 growth into plant, with pictures, 2-508
 how produced, 3-884-85
 numbers produced, by plants, 4-1275; 13-4826
 by grasses, 10-3526
 of pine trees, 13-4636
 sugar-pine, 13-4636, 4639
 of weeds, 9-3393-94; 15-5387
 * scattering from parent plant, 3-1083-87
See also main articles under Plant Life, 20-7599
Poem about
 Seed Shop, by Muriel Stuart, 14-5129
Questions about
 Can one plant produce thousands of seeds in a season? 13-4826
 Do seeds breathe just as we do? 15-5519-20
 How does the seed make the color of a plant? 14-5087
 Will a seed grow after thousands of years? 8-2718
Pictures
 cross section, buttercup seed, 2-508
 in various fruits, 2-507
 showing ways of scattering, 3-1083-87
See also main articles above
Seeger, Alan, American poet, 12-4234
Seeing, *see* Sight
Seeley, Sir John Robert, author, 11-4003
Sefton, Mt., New Zealand, 7-2570
Segantini, Giovanni, Italian painter, 8-2854
Segesta, Sicily
 Picture, old Greek temple (gravure), 15-5354
Sego lilies, 18-6662
Segovia, Spain, 14-5050
 Alcazar, 9-3356
 Picture, the Alcazar, 14-5045
Seigniorial system
 in Canada, 2-682
Seine, French river, 4-3816
Seines, use in fishing, 11-4052-53
Seismograph, *see* Seismometer
Seismometer, records earthquakes, 14-5219-20
 Picture, 14-5219
Sejanus, Tilius, and Emperor Tiberius, 5-1860
Selectmen. Men possessing executive authority and managing various local affairs in some New England towns. They are usually elected each year. They correspond to "aldermen."
Selene, name for Diana as goddess of the moon, 9-3227
 moon, in ancient mythology, 9-3233
Selenium (Se). A chemical element occurring chiefly in combination with copper, lead and silver.
Seleucus, king of Persia, 3-918
Self-control, value of, 8-2683-84
Self-determination. Right of nationalities to choose their own form of government. The term came into use toward the close of the World War with reference to the Poles and other peoples under rule of a stronger power.
Self-heal, flower
 Picture (in color), 15-5612
Selfish Giant, story by Oscar Wilde, 4-1187-89
Selkirk, Alexander, original of Robinson Crusoe, 2-665
 marooning and rescue, 3-860
 put on island by Dampier, 9-3296
Poem about. Alexander Selkirk, by Cowper, 19-6871
Selvas, definition, 6-2171
Semern, volcano, height of, 7-2313
Semicircular canals of ear, * 10-3425-27
 Picture, 10-3425
Semites. The family of Mediterranean type in which are included the Arabs, the Himeyarites of Abyssinia, the ancient Assyrians, Aramaeans, Amorites, Philistines, Phoenicians and Carthaginians and the still-surviving Jews. The inscriptions found in the countries inhabited by these races are all in the Semitic languages.
Semolina, made in flour mill, 8-2800

Sempach, Battle of. Fought in 1386 between 1,500 Swiss and the Austrians under Duke Leopold. Leopold was killed and his forces were routed. In this battle Arnold von Winkelried performed his great act of heroism, breaking the opposing line by drawing the spears of the enemy on to his own breast.
See 16-6004
Seneca, Lucius Annæus, Roman author, 16-5912
Seneca Chief, first boat on Erie Canal, 13-1884, 1886
Senegal. Oldest French West African possession; area, 74,112 square miles; capital, St. Louis. Corn, millet, nuts and gum are produced, and Dakar is a rising port.
Serlis, France
 Picture, cathedral (gravure), 17-6171
Senna, 8-2911-12
 obtained from cassia plants, 8-2996
 Picture (in color), 8-2999
Sennacherib, king of Assyria
 life and reign, 2-655-56
 destruction of army, 2-656
 Poem about. Destruction of Sennacherib, by Lord Byron, 19-6990
 Picture, palace, 14-5207
Sensation, 11-4065-68
Senses
 and the brain, 8-2944-47
 bat's sense of feeling, 1-316
 kinds and importance, 9-3305
 of earthworms, 19-7144
 of fishes, 11-3841-42
 of insects, *see* Insects—senses of
 relation to ideas, Plato on, 16-5918, 5920
 source of thought material, 11-4065-66
See also Hearing; Sight; Smell; Taste
Question about
 Why does boiling water feel cold when we put our hand in it? 14-4950
Sensitive plant, movements of, 2-745-46
 Pictures, 2-743
Sentence. In grammar, a combination of subject and predicate, simple or complex; a complete thought expressed in words.
Sentimental Tommy, by Barrie
 * quotations and summary, 9-3239-44
Seoul, Korea, *see* Seul
Sepal, part of flower, 2-506; 3-1013
Separatists, in England, 2-546
See also Pilgrim Fathers
Separators of cream, 1-382-83
 Picture, 1-382
Sepia, fluid from squids, 16-5898
Sepia-print pictures, how to make, 15-5331-32
September. In our calendar the ninth month of the year, consisting of 30 days. In the old Roman year it was the seventh month, the name coming from Latin *septem*, seven.
Sequoia National Park, California, 7-2290-91
 Picture and note, 7-2282
Sequoia trees
 account of, 9-3262
 age of, 7-2416
 size of, 2-613
 varieties and use of wood, 12-4249-50
 Pictures, 7-2282; 9-3267
Sequoya. Cherokee Indian scholar who gave written language to his people; born near Tuskegee, Alabama, 1760; died, 1843.
Seranus, pen name of Mrs. S. Frances Harrison, 14-5109
Serapis. An Egyptian god worshiped at Memphis and Alexandria. He was really the dead sacred bull Apis honored under the additional name of Osiris, the name Serapis being made out of Osiris and Apis. Serapis was lord of the underworld in Egyptian mythology.
Serbia, or Servia
 national hymn, 17-6255
 See also Jugo-Slavia
Sergeant. A non-commissioned officer in the army or in the marines, next higher in rank to the corporal.
Sergeant-at-arms. An executive officer in certain legislative bodies who is authorized to keep order in such bodies and has charge of the payment of members. Both Houses in the British Parliament and the Canadian Parliament and the United States Senate and House of Representatives have sergeants-at-arms.
Sergeant Casey, dog, story of, 16-5738
Seriema, birds of South America, 11-4010

GENERAL INDEX

- Serpent**, game with marbles, 17-6389
Serpentine, rock, 17-6386
Serpents, *see* Snakes
Serra, Father Junipera
 founded California missions, 6-1922
Serval, animal. *Picture* (graveure), 2-500
Servetus, Michael, Spanish physician
 discovered valves in veins, 8-2725
Servia, *see* Jugo-Slavia; Serbia
Service, Robert W., Canadian author, 14-5108-09
See also Poetry Index for poem and note
Service-berry, or shadbush, 12-4512, 4514
Service tree, wild, 12-4382-83
Picture and note, 12-4-91
 fruit (in color), 11-4027
Set, Egyptian god, 3-812
Seton, Ernest Thompson, Canadian author,
 15-5372
Setter dogs. *Picture* (graveure), 2-714
Setubal, Portugal, 14-5188
Seoul, capital of Korea, 2-566
Sevastopol, *see* Sebastopol
Seven Sleepers of Ephesus. Seven noble young
 men of Ephesus who are said to have fled dur-
 ing the Decian persecution of the Christians,
 A.D. 250, to a cave in Mount Celion, where they
 slept for 230 years.
Seven Virtues. Faith, hope, charity, prudence,
 justice, fortitude, temperance.
Seven Weeks' War. The campaign from June 8
 to July 26, 1866, when Prussia, under the leader-
 ship of General von Moltke, defeated Austria
 and secured German supremacy.
Seven Wonders of the World
 * account of, 7-2604-08
 Colossus of Rhodes, 12-4467
 hanging gardens of Babylon, 2-659
 lighthouse, Alexandria, 3-821
 Mausoleum, Halicarnassus, 12-4331-32
 pyramids, Egypt, 3-808-09; 14-5211
 statue of Zeus, Olympia, 12-4220
 temple of Diana, Ephesus, 15-5344-45
Pictures
 * as imagined by modern artists (graveure),
 7-2605-08
Seven Years' War
 and Frederick the Great, 11-4048-49
See also French and Indian War
Seventeen-year locust, *see* Cicada
"Seventy-two Resolutions" of Canada, 4-1488
Sewern. Second largest river of England and
 Wales, rising in Plynllymmon and flowing into
 the Bristol Channel. It passes Shrewsbury,
 Worcester, Tewkesbury and Gloucester, and its
 chief tributaries are the Teme and Upper Avon.
 Draining 4,350 square miles, it is generally too
 swift for navigation, and has a tidal bore. 210
 miles.
 proposed use of tides for power, 18-6558
Sevier, John, pioneer, in Watauga valley, 6-2196
Sévirné, Marie, Marquise de. French letter-
 writer; born, Paris, 1626; died, Grignan, Dau-
 phine, in 1696.
Seville, Spain
 Alcazar, 9-3256
 cathedral, 17-6164
 centre of Spanish American trade, in colonial
 era, 19-6864
 Giralda tower, 15-5466
Pictures
 Alcazar, 14-5047; 15-5473, 5475, 5477
 cathedral (graveure), 17-6172
 courtyard in Pilate's house, 15-5476
 Giralda tower, 15-5469
 Irving memorial, 13-4627
Sèvres. French town between Versailles and
 Paris, with a famous porcelain industry and
 school of ceramics.
Sewage disposal, use of microbes, 2-558
Seward, William Henry, life, 10-3495
Picture, portrait, in group, 7-2426
Sewing
 directions
 apron for child, 7-2649
 buttonholes, 19-7079
 sewing-bag, 18-6778
 window curtains, 17-6387-88
 elementary directions, 1-338-39
 mending clothes, 11-3857-58
 of books, 12-4262-63
See also Doll dressmaking; Embroidery
 For list of main articles, *see* 20-7638
 sewing-bag, felt, directions for making, 18-6778
Sewing machine, invention of, 19-7212-13
Picture, 19-7213
Sex in plants, *see* Flowers—fertilization; Repro-
 duction—plants
Sextant. An instrument of navigation and sur-
 veying, for measuring the angular distance of
 stars or other objects, or the altitude of a star
 above the horizon. Newton was the first in-
 ventor, but his description was not published
 until after his death. Before the publication,
 about 1730, Thomas Godfrey of Philadelphia had
 made a sextant.
Sexton beetle, 18-6627
Seychelles, islands, 9-3182
Seymour, Jane, mother of Edward VI, 5-1817
Shackleton, Sir Ernest, explorer
 buried in South Georgia, 9-3188
 death, 14-5101
 expeditions
 in the Endurance, 14-5100
 in the Nimrod, 14-5093
 in the Quest, 14-5101
 Scott's, in the Discovery, 14-5092-93
 experience with whales, 6-2220
Pictures
 portrait, 14-5089
 antarctic scenes, 14-5099
Shad, fish, 11-4051-52; 16-5776
Picture, taking catch from the net, 11-4060
Shadbush, 12-4512, 4514
Shaddock, variety of grapefruit, 6-2058
Shades for lamps, *see* Lamp shades
Shadoof, use in irrigation, 3-808
Picture, 7-2547
Shadows
 shadow-pictures on wall, directions, 16-5769
Question about. Why are shadows longer at
 the end of the day? 4-1230
Shaftesbury, 1st earl of
 proprietor in Carolina, 2-553
Shagbark hickory, *see* Hickory trees
Shaggy-manes, mushrooms, 11-3908
Shah Jehan, Mughl emperor
 as architect, 15-5471-72
 reign of, 8-2624
Pictures, portrait, 8-2821
 apartment in palace (graveure), 15-5477
 Taj Mahal, 8-2701; (graveure), 8-2835; 15-5477
Shakespeare, William
 * life and genius, 2-722-24
 books he used, 3-1118
 * plays, account of, 3-833-38, 983-86
 plays, stories of
 All's Well That Ends Well, 8-2686
 Hamlet, 16-5761-62
 Measure for Measure, 16-5755-56
 Merchant of Venice, 8-2688
 Midsummer Night's Dream, 8-2685
 Much Ado about Nothing, 16-5757-58
 Othello, 8-2691
 Romeo and Juliet, 16-5759-60
 Tempest, 8-2687
 Twelfth Night, 8-2692
 Winter's Tale, 16-5756-57
 poetry, characteristics, 2-722-24
 sonnets, 2-724
 * writers of his age, 3-1117-25
See also Poetry Index for poems and notes
Poems about
 quotation from Milton, 2-724
 Shakespeare, by Matthew Arnold, 7-2365
Pictures, with notes, 2-725-27
 portrait (graveure), 5-1821
 portrait (in group), reading to Queen
 Elizabeth, 3-833
 portrait with great men of his time, 2-721
 Globe Theatre, where Shakespeare acted,
 2-720
 plays, illustrations of, *see* titles of plays
Shale, oil from, note and picture, 13-4550
 bituminous, 13-4542
Shalmaneser II, king of Assyria, 2-655
Shama, bird. *Picture*, 9-3135
Shamrock
 and wood-sorrel, 18-6570
 emblem of Ireland, 8-2930; 17-6180
Shandaken Tunnel, longest in the world, 14-5056
Picture, 14-5054
Shandon, Ireland
Poem about. Bells of Shandon, by Mahony,
 14-5238
Shanghai. Greatest Chinese port, near the
 mouth of the Yang-tse-kiang. Exporting chiefly

GENERAL INDEX

Shanghai (continued)

silk, tea, sugar, cotton, hides, wool and beans, it does about two-fifths of the whole foreign trade of China, and has a large foreign quarter. description, **2-434**

Picture, **2-431**

Shanley, Charles Dawson, see Poetry Index for poem and note

Shannon. Largest river of Ireland and the British Isles, draining 4,550 square miles. Rising in County Cavan, it flows into the Atlantic by an estuary at Limerick. 250 miles.

Shannon, ship victory over Chesapeake, **5-1704**; **17-6330**

Shantung, China Japanese capture fortress, **2-436**, **566**

Shapo, wild sheep, **4-1375**

Sharks, **16-5893-94** accompanied by pilot fish, **15-5541**

Pictures, **16-5895**, **5897**

blue shark, **16-5893**; (in color), **16-5784**

elfin shark, **16-5899**

fox shark (in color), **16-5784**

frilled shark, **16-5899**

Question about. How fast is a fish able to swim? **5-1606**

Sharp, Cecil, and folk songs, **16-5740**

Sharp, William, author, **11-3897**

Shaw, George Bernard. Brilliant British dramatist and critic; born, Dublin, 1856. His best comedy is *Candida*. He is an excellent speaker and is renowned for wit and satire.

Picture, portrait, by A. John (graveure), **8-2861**

Shaw, Henry Wheeler, see Billings, Josh

Shaw, R. Norman, English architect, **18-6492**

Shays' Rebellion. An insurrection in western Massachusetts in 1786-87, under Daniel Shays. The uprising was unsuccessful. Shays escaped.

Sheard, Mrs. Verna, Canadian author, **14-5110**

Shearwaters, birds, **11-4126**, **4128**

Pictures, **11-4125**

Manx (in color), **9-3281**

Sheave, elevator pulley, **4-1218**

Sheep

* Sheep and goats, **4-1369-78**

and wool production, **15-5575-76**

attacked by kea, **10-3614**

breeds, **4-1376**

can live in dry regions, **19-6842**

in Australia, **7-2462**, **2466**, **2468**

raised in U. S., **9-3208**

scab, disease, prevention of, **15-5579**

wild species, **4-1375**

* Pictures, **4-1371-74**, **1377**

illustrating wool-raising, **15-5577-82**

New Zealand flock, **7-2577**

ranch in Montana, **18-6435**

Sheep-breeding, **4-1370**, **1375-76**

Sheep-laurel, shrub, **13-4776**

Sheepheads, fish, **16-5780**

Sheffield, England, manufactures cutlery,

4-1305-06

Sheik. In some Mohammedan countries, especially Arabia, a chief or head of a village or tribe; sometimes a religious chief or elder.

Shekel. A weight and a coin of the ancient Assyrians, Jews, Phoenicians and other peoples. It came to be the chief silver coin of the Jews about 140 B.C. and was worth about 60 cents. Nowadays the word is used as a slang expression for money.

Sheldon, Lurana, see Poetry Index for poems and notes

Sheldrakes, ducks, **11-3890**

Pictures, **11-3887**; (in color), **9-3282**

Shelf, how to make, **14-4999**

Shelley, Percy Bysshe, **7-2491-92**

See also Poetry Index for poems and notes

Pictures, portraits, **7-2488**; with parents,

15-5618

Shellfish, see Crustaceans; Molluscs

Shells

how to make a collection, **14-5201**

in ooze of sea, **7-2539**

of molluscs, **19-6883-85**

sound is caused by echoes, **18-6554**

use in decoration, **15-5510**

See also Molluscs

Questions about

How does a mussel build its shell? **12-4278**

What has happened to the snails from all the empty shells? **14-5085**

Where do all the shells come from? **15-5362**

Shells—Questions about (continued)

Why can we hear a noise like waves in a seashell? **5-1608**

Pictures

200 varieties, **19-6886-87**

(in color), **19-6893-96**

Shells, Explosive

Question about. What keeps a shell from falling to the ground? **2-686**

Shelter of branches, how to make, **19-6961**

Shenandoah, airship, **1-163**, **170**

Picture, and note, **1-166**

Shenstone, William, see Poetry Index for poem and note

Shepherd's Calendar, by Edmund Spenser, **3-1119**

Shepherd's purse, weed, **15-5394**

Picture and note, **15-5393**

Sheraton, Thomas, furniture-maker, **18-6772**

Pictures, examples of characteristic furniture,

18-6771-73

Sherbrooke, Quebec

increase of French element, **8-2949**

Sheridan, Philip Henry (1831-88). American soldier born in Albany, N. Y. He graduated from West Point, and during the Civil War became distinguished as a cavalry officer.

operations in Virginia, **7-2442**

Poem about

Sheridan's Ride, by T. B. Read, **19-6868**

Picture, portrait, **7-2437**

Sheridan, Sir Thomas, tutored Prince Charlie,

15-5640

Sheridan, packet-ship, race of, **11-3919**

Sheriff. In Canada and the United States, the chief civil officer whose duty it is to administer justice under court, executive head, or crown order, within a county.

Sherman, James S., vice-president of U. S.

Picture, portrait (graveure), **11-3948**

Sherman, Roger

Picture, portrait, in group, **4-1167**

Sherman, William Tecumseh (1820-91). American soldier, born in Ohio. He graduated from West Point, and served in Mexican War, but resigned from the army to engage in banking and then in teaching; returned to army in 1861 and fought in many of the most important battles of the war; succeeded Grant as commander of peace army in 1869.

march to the sea, **7-2439-40**, **2442**

Picture

portrait, **7-2437**

scene during march to the sea, **7-2439**

Sherwood Forest. One of the ancient English forests, extending from Nottingham northward to Worksop, and covering nearly 200 square miles. Famous as the retreat of Robin Hood.

Shetland Islands. Scottish group of 30 islands and 70 uninhabited islets in the North Atlantic. They cover 550 square miles and form a Scottish county. Lerwick on Mainland being the capital. Sheep, cattle and Shetland ponies are bred, but the main industry is fishing.

Shetland ponies, origin of, **6-2014**

Pictures, **6-2019**; **10-3712**

Shetland shawls, story about, **10-3711-12**

Shick Shock Mts., Quebec, **1-108**

Shield, toy, how to make, **15-5339**

Shilling. A coin or paper money varying in value, used mostly by the Anglo-Saxon peoples, with the exception of those in North America, where the decimal system has replaced the old monetary system. The first shilling was issued in the reign of Henry VII. The par value of the present-day English shilling is 24 cents.

Shillito, Edward, see Poetry Index for poem and note

Shiloh, Battle of, **7-2433**

Shin leaf, plant, note and picture, **16-5879**

Shining splendor comes, * **2-721-27**

Shintoism, religion

in Japan, **2-562**

Picture, temple, **2-569**

Shipka, Battle of, **14-4926**

Shipka Pass, Balkan Mts., **14-4929**

Shipping, tonnage, rank of nations, **15-5300**

Ships

* A great ship and what it can do, **12-4415-33**

* Reign of wooden ships, **11-3909-20**

balance in water, **14-5179-80**

battleships, see Battleships

chart-house, **12-4427**

clipper-ships, **11-3919-20**

GENERAL INDEX

Ships (*continued*)

- destruction of, by shipworm, 19-6889
- early fishing ships, Newfoundland, 8-2980
- electricity, use of, 12-4416
- engines, 12-4416
- fire protection in New York harbor, 9-3162, 3164
- food supply, ocean liner, 12-4415-16, 4429
- * history, before steamships, 11-3909-20
 - of ancient Egypt, 11-3910
 - of ancient Greece, 11-3912
 - of ancient Rome, 11-3914
 - of Phoenicians, 11-3910, 3912
 - of Teutonic tribes, 11-3914
- masts, reason for tapering, 3-1115
- measuring depth of water, 12-4422
- of concrete, 7-2307
 - how made, note with picture, 7-2311
- of England, 11-3914, 3916, 3918
- of Spain, 11-3916-17
- oil as fuel, 13-4539
- packet ships cross Atlantic, 11-3918-19
- * parts of, 14-5002-04
 - safety precautions, 12-4427
- * sailing ships, various kinds, 11-4086-88
 - screw-propeller displaced paddle-wheel, 12-4416
- * steamships, invention and improvements, 17-6397-6406
 - speed, measurement of, 12-4422
 - ventilation, modern liner, 12-4416-17
 - water supply, ocean liner, 12-4416, 4419
 - water-tight compartments, 12-4427
 - wireless telegraphy, use of, 12-4421
- Poem about. Off Rivière du Loup, by D. C. Scott, 10-3481*
- Question about. How do ships sail against the wind? 2-455-56*
- * *Pictures, 11-3909-20; 17-6399-6408*
 - blowing up wrecked vessel, 13-4784
 - diagram of modern vessel, 14-5002
 - laying a cable, 12-4295, 4299
 - modern ocean liners, 12-4414
 - * parts of ocean liner, 12-4417-33
 - * parts of a ship, 14-5002-04
 - * sailing ships, various kinds, 11-4086-88
 - Viking ship, 1-240
 - water-tight doors, 12-4423
- Shipton, Mother**, prophecies of, 7-2602
 - Picture, home at Knaresborough, England, 7-2602*
- Shipworms**, molluscs, 19-6888-89
- Shiraz**. Ancient walled city of southern Persia, once one of the chief centres of the Zoroastrian religion.
 - Picture, 3-909*
- Shires**, divisions of England, formation, 4-1430
- Shirt-waist closet**, directions for making, 8-2876-77
- Shock**, treatment for, 16-5980-81
- Shoe-bag**, directions for making, 8-2882
- Shoe-lace**, button made from, 17-6386
- Shoemaking**
 - * Story in a pair of shoes, 18-6441-46
 - apprentice and factory systems, 18-6442-43
 - machine for sewing soles, 19-7213-14
 - steps in manufacture, 18-6443-45
 - patron saints of shoemakers, 6-1997
 - tools of shoemakers, 18-6441
- * *Pictures, 18-6440-53*
- Shoes**
 - description of, 18-6441
 - effect on bones of foot, 5-1677
 - fitting by X-ray, 16-5943
 - history of shapes, 18-6446
 - how to clean, 15-5335
 - sizes and numbers, 18-6446
 - states of U. S. making most shoes, 11-3778
 - synthetic, 5-1551
 - See also Shoemaking*
 - Pictures*
 - cross section of pegged and welt shoe, 18-6444
 - parts of, 18-6440
 - wooden shoe of India, 18-6454
- Shoguns**, rulers of Japan, 2-563
- Sholes, Christopher L.**, invented typewriter, 19-7214
- Shooting star**, plant, 19-6939
 - Picture, with notes, 19-6933*
- Shooting-stars**, *see* Meteors
- Short circuit**, fire from, extinguished by sand, 4-1452

Shorthand. A method of writing by means of quickly noted signs or characters so that the hand can keep pace with the speech. The ancient Greeks and Romans had a system but it was lost. In the 16th century the art was revived, but Pitman in 1837 devised the successful system still used with modifications. There are also several later and varying systems, such as the Gregg system.

Shorthorn, breed of cattle, 4-1262

Pictures

(in color), facing 4-1259

(gravure), 4-1265

Shorthouse, Joseph Henry, novelist, 11-3398

Shoshone Falls. On Snake River, Idaho; 210 feet high.

Shoulder-blade, in human body, 5-1676

Shoulder shove, game, 18-6523

Shovelers, ducks, 11-3888

Pictures, 11-3886; (in color), 9-3130

Shrapnel. A form of shell for use in field guns, invented by General Henry Shrapnel of the British army, who died, 1842. A powder-charge bursts the casing of the shell, which is filled with bullets, at a point before the objective is reached, and the released bits of metal fly onward in a spread-out shower. The distance of explosion is gauged on a time fuse set in the nose of the shell. During the World War shrapnel shells inflicted enormous numbers of casualties.

Shrews, animals

varieties of, 1-320

Pictures, 1-317

Shrewsbury. Capital of Shropshire, England, on the Severn. An ancient place with many picturesque houses, it has a Norman castle and abbey church and a Roman Catholic cathedral.

Shrikes, birds, 9-3138; 13-4836

Pictures, 9-3133

African shrike (in color), 10-3622

loggerhead shrike (in color), 13-4842

nest and eggs, 8-2757

red-backed (in color), 9-3282

Shrimps, description, 16-5956

Picture, 16-5951

Shrubs

* North American shrubs, 13-4775-83

definition of, 13-4775

difference from trees, 11-4093

Shushak, suburb of Fiume, 17-6348

Siam. Kingdom of southeast Asia; area, 200,148 square miles; capital, Bangkok. Rice is the staple crop, and the greatest exports are rice, teak and tin, Burmese and Chinese doing most of the manual labor. In the present century the country has made great progress, education having been greatly improved and much of the interior opened; a university has been founded at Bangkok. The people are mainly Siamese Buddhists, but there are a million Moslem Malays, and nearly two million Chinese.

Siberia. Immense Russian territory in northern Asia, stretching from the Urals to the Sea of Japan. Nearly 40 times as large as the British Isles, it covers 4,833,496 square miles, while the population only amounts to about 11,000,000, mainly immigrants from Russia. Turkish, Ugrian and Mongolian tribesmen number about 700,000. In the east Siberia is mainly a tableland, with valuable deposits of gold, silver, copper, lead, iron, and coal among the mountains; the west is largely a fertile corn-growing plain, with comparatively dense population in places. The Trans-Siberian Railway stretches 5,700 miles from the Atlantic to the Pacific, from Leningrad to Vladivostok, and steamers ply during the summer on the Obi, Yenesei, Lena and Amur rivers. The north generally is covered with forests and swamps, in which a sparse population of tribesmen live by fishing and hunting; in the far north are 450,000 square miles of inhospitable and bitterly cold tundra, temperatures as low as 75° and 85° below zero having been registered at Verkhoyansk and Yakutsk. The chief towns are Tobolsk, Omsk, Tomsk, Irkutsk, Chita, Blagoveschensk, Khabarovsk, Nikolaievsk and Petropaulovsk.

conquered by Russia, 16-5692

settled by convicts, 16-5852

Pictures, 16-5851

Siberian Railway, 16-5852

Sibyl, at Cumæ, 6-1988-89

GENERAL INDEX

Sibylline oracles. Writings of the first four centuries of the Christian Era modeled on the pagan Sibylline Books as propaganda for Christianity.

Sic. Latin for "thus." When used within brackets in English it implies incredulity or contempt in regard to the statement which it follows.

Sic transit gloria mundi. Latin for "thus passes worldly glory."

Sicilian Vespers. Massacre on Easter Monday, March 30, 1282, of 8,000 Frenchmen in Sicily by natives of the island.

Sicilians. Originating from a race of Mediterranean type coming from North Africa, the Sicilians of to-day are a very mixed people; Greeks, Phoenicians, Romans, Vandals, Normans, Arabs, French and Spaniards having settled in this island.

Sicily. Largest island of Italy and the Mediterranean; area, 9,935 square miles; capital, Palermo. The chief industries are fruit-growing and the sardine and tuna fisheries, though Mount Etna is the chief source of the world's sulphur supply. Palermo, Messina, Catania, Trapani and Marsala are important ports; Syracuse and Girgenti abound in antiquities. Occupied in turn by Greeks, Carthaginians, Romans, Franks, Goths, Byzantines, Saracens, Normans, Angevins and Aragonese, Sicily has had the most eventful history of all Europe.

Picture, 13-4575

Sickle, description, 19-7210

Sicklebills, birds, 9-3288

Picture, 9-3287

Sickness

Question about. Should we have plants in a sick-room? 6-2124

Siddons, Mrs. Sarah Kemble

Pictures

portrait by Lawrence (in color), 7-2339

portrait by Reynolds as Tragic Muse (graveure), 6-2113

Sidewalks, concrete, how made, 7-2306

Sidewinder, rattlesnake, 15-5416

Sidney, Sir Philip. English poet and soldier friend of Edmund Spenser. 3-1119

heroism of, 6-2007

wrote *Arcadia*, 4-1477

See also Poetry Index for poem and note

Poem about. On Sir Philip Sidney, by Sir

Fulke-Greville, 11-4029

Picture, giving water to wounded soldier,

6-2006

Sidon, sarcophagus of the Weepers, 12-4459-60

Picture, 12-4466

Siege. A military manoeuvre in which a strong force encamps around a fortified city or place, and by cutting off supplies as well as by aggressive tactics tries to make the defenders submit.

Siegfried, hero in German literature, 17-6266

Siemens, Sir Charles, inventor

Picture, portrait, 19-7201

Siemens, William, inventor, 19-7207

Siena. Famous city of Tuscany, one of the earliest centres of Italian Renaissance art. It is situated on three hills, the streets being winding and picturesque. Noted for straw-plaiting and trade in oil and wine. The 13th-century Pointed cathedral contains Donatello's statue in bronze of John the Baptist.

cathedral, 17-6163-64

early painters, 2-691-99, 697

Henry Fountain, 12-1608

Picture, cathedral (graveure), 17-6170

Sierra Leone, account of, 9-3056

Sierra Madre. Mountain range in Mexico. Sometimes applied to Rocky Mountain system in New Mexico.

Sierra Nevada. Californian mountain range containing Mount Whitney, the highest peak in the United States, 14,897 feet. Famous for its grand scenery.

Sierra Nevada. Mountain range in Andalusia, Spain, rising to 11,660 feet in Mulhacen.

Sight

* eye, seeing part of, 11-3801-04

* eye, story of, 10-3683-86

impressions, received for, 10-2686

in lower animal forms, 10-3682-84

magnifying glass, explanation, 2-462

objects under water, appearance, 8-2742, 2881

Sight (continued)

relation to light from objects, 12-4156

table of range of vision, by elevations, 19-7245

tricks to deceive eyes, 7-2647

vision centre in brain, 8-2346-47; 9-3062

See also Light

Questions about

Are pictures of the things we see printed on the eyes? 16-5960

Can country people see better than town people? 12-4398

Can we see everything with our eyes? 10-3730

Do we see a thing as soon as we look at it? 1-312

Do we see ourselves in dreams? 17-6179

Do we see things in the distance, or the light that comes from them? 2-458

How can we judge real or pictured distance? 3-1116

How can we see with our eyes shut? 7-2359

How far can we see? 19-7245

Is there a color our eyes cannot see? 10-3579

Why cannot we see the spokes of a wheel when it goes very fast? 15-5518

Why cannot we see very small things with our naked eyes? 14-4952

Why do two sides of a road seem to meet in the distance? 14-5222

Why do we see a black spot in the sky after looking at the sun? 14-4950

Why do we see lights when we get a blow on the eye? 13-4596

Why can we not see the bottom of a river? 10-3580

Why can't I see in the dark? 5-1807

Why do dark things look smaller than light things? 6-2122

Why do houses seem crooked when we look across a fire? 5-1752

Why do things seem blurred when seen from a great height? 7-2612

Why have we two eyes? 9-3100

Why does heat make things seem to quiver? 5-1751

Why, if we look at red, do we afterward see green? 2-687

Sign-language

of Indians, 5-1768

See also Signaling; Writing

Picture, in Stone Age of Australia, 8-2871

Signac, Paul, French painter, 8-2709

Signaling

by heliograph, 10-3732-33

by Indians, 5-1768

flag-wagging; directions, with pictures, 11-4018-19

flashing messages at night, directions, 18-642

on railroads, description and pictures, 2-414

automatic railroad signals, 16-5806

smoke signals used by Indians, 5-1768

various methods, 17-6235

Signature, meaning of term, in book-making 12-1261

Signorelli, Luca di Egidio di Venture de',

Italian painter, 2-699

Si-Kiang, river in China, 2-422

Silage, fodder in silo, 7-2413

Silesia. Important Prussian province, lying between Czecho-Slovakia and Poland. In the southeast is a valuable coal-mining district, zinc and lead being also found; but much of the industrial district has become Polish by plebiscite. Breslau, the capital, is a manufacturing centre, and a small part of the province belonging to Czecho-Slovakia is also industrial.

taken from Austria by Prussia, 11-4047

Silhouette, Monsieur Etienne de, and name of portraits, 19-7077

Silhouettes, account of, 19-7077

Silica, use in glass-making, 18-6746

Silicon

boiling and melting points of, 8-3014

in sand, 17-6178

Silk

* history and manufacture, 15-5307-21

annual world production, 18-6731

artificial, discovery of, 13-4828; 15-5310

French factories, 11-3818

how to test purity, 2-621; 5-1774-75

industry in Europe, 18-6529

industry in U. S., 9-3214, 3216

GENERAL INDEX

Silk (continued)

See also Silkworms
Question about. What is artificial silk made of? 13-4828

Pictures, showing production and manufacture, 15-5312-21

Silk-cotton tree, use of, 8-2790

Picture, 8-2785

Silk grass, see Yucca

Silkworms

how introduced into Europe, 15-5307-08

steps in raising, 15-5308-09

Pictures

life history, 15-5312-13

method of raising, 15-5314

Sill, Edward Rowland, see Poetry Index for poems and notes

Silliman, Benjamin, experiments on petroleum, 15-4534

Silo. Picture, 7-2413

Siloam inscription, 7-2483

Picture, 7-2483

Silurian period, geology, see Geology—Silurian period

Silver (Ag). A shiny white metal. When found in its native state its surface soon tarnishes upon exposure to the air. It is usually found in wiry, flaky or mossy masses and often with lead or copper. It is a soft metal and ranks next to gold in malleability and ductility.

Australian mines, richest in world, 7-2470

production in Mexico, 9-3210

production in U. S., 9-3210

Question about. Why does silver tarnish in the air while gold does not? 10-3477

Silver Heron, ship, 11-3920

Silver-plating, explanation of, 4-1308, 1310-11

Pictures, 4-1310-11

Silverweed. Picture (in color), 13-4878

Sime, J. G., Canadian author, 15-5371

Picture, portrait, 15-5372

Simeon Stylites, St. Monk of Sisan, Syria, who, when his fame spread among the Arabs, retired up a high pillar near Antioch, on which he lived for 30 years. He made many converts, and also influenced state matters up to his death, in about 459.

Simla. Hot-weather capital of India, in the Punjab. It stands 7,000 feet above sea-level in the Himalayan foothills.

Simmons, Edward E., American painter, 10-3453

Simms, William Gilmore, American author, 13-4628

Simon, Hermann, and wireless telephony, 17-6247

Simon, Lucien, French painter, 8-2855

Picture. The Procession (graveure), 8-2862

Simon de Montfort, see Montfort, Simon de

Simonides, Greek author, 16-5751

Simoon, desert wind, 18-6743

Simple cell, see Electric batteries

Simplex printer, note and pictures, 17-6058

Simplissimus, character in early German book, 17-6268

Simplicius, Christian martyr, 9-3068

Simplon Pass. Alpine pass leading from the Swiss Valais to Domo d'Ossola, Italy. The railway to Milan is carried beneath it by a tunnel 12 miles long, 6,600 feet.

Simpson, Charles, English painter, 8-2860

Simpson, Sir George, head of Hudson's Bay Co., 12-4339

Simpson, James, discovered use of chloroform as anesthetic, 8-2729-30

Sims, Admiral William S. Born, Port Hope, Canada, in 1858. Became American citizen. Commanded American naval forces in European waters after the United States entered the Great War.

Sinai, Mt. Historic summit in the Sinai peninsula of Egypt. 8,550 feet.

Sine die. Latin for "without day"; indefinitely.

Sine qua non. Latin phrase meaning "without which nothing"; hence, in English, an indispensable condition.

Sinecure. Office of profit or dignity involving no serious obligations. The term is from the Latin *sine cura*, without care.

Sinew. definition of, 5-1803

Sing Sing. New York State prison at Ossining, Westchester County, New York.

Singapore, island port, 9-3184

Picture, Mohammedan mosque, 9-3183

Singer, Isaac M., improved sewing machine, 19-7213

Singer building, N. Y. city. Picture, 9-3213

Singing

how different from speaking, 10-3557-58

how larynx produces tones, 10-3556

overtones and quality of voice, 19-6853-54

part-singing introduced, 10th century, 19-6901

range of voice, 10-3556

vowels more musical than consonants, 10-3560-61

See also Songs; Music

Questions about

What are William Byrd's eight reasons for singing? 16-5744

When we sing a note to the piano, why does it answer? 5-1750

Single tax. A theory of taxation by which only land value would be taxed, people contributing to the public revenue in proportion to the value of the land they hold, and paying no other government tax.

Sinn Fein, in Ireland, 8-2938, 2940

Siouans. One of the largest linguistic stocks of North American Indians. In former times they ranged far and wide, especially from the Saskatchewan southward to Arkansas and from the Mississippi to Wyoming. They include the Dakotas, Omahas, Iowas, Crows, Assiniboinas, Osages, Winnebagoes and many others.

Siphon, experiment showing working, 2-622

Question about. How does a siphon work? 15-5365

Siphon recorder, cable instrument, invented by Kelvin, 12-4296

pictures and note, 17-6053, 6371

Siraj-ud-Daula, see Surajah Dowlah

Siren, whistle, description, 18-6439

diagram and explanation, 18-6695

Sirenia, group of mammals, C-2213

Sirens, sea nymphs, 1-356

and Ulysses, 6-1986

explanation of, 6-2213

in mythology, 9-3236

Sirius, the dog star

composition of, 11-3924

distance from earth, 9-3034; 11-3783

in mythology, 9-3233

legends of, 6-1970

white light indicates greatest heat, 9-3178

Sirius, steamship, 17-6402

Sirocco. Italian name for a southeast wind, which may be warm, humid and sultry as in the winter, or hot and dry and dust-laden, usually in the spring.

Sisal hemp

account of, 8-2788

uses of, 11-3792

Pictures, 8-2785; 11-3791

Siskins, birds, 8-2973

pine siskins, 13-4832

Picture, red siskin (in color), 12-4371

Sisley, Alfred, French painter, 8-2714

Picture. Road to Mount Valerien, 8-2713

Sisters of Charity

in leper colony of Molokai, 7-2322

work of Vincent de Paul, 5-1733

Sistine Chapel, Vatican, Rome

Michelangelo's paintings, 3-831

Pictures, Michelangelo's paintings, 3-822, 823, 826-27

Sistine Madonna, by Raphael

Picture (graveure), 3-962

Sitting Bull (Tatanka Yotanka) (1837-90). A Sioux chief who led many Indian risings in the Western states of the United States. After the killing of General Custer on the Little Big Horn in 1876 Sitting Bull escaped to Canada. He returned to the United States in 1881. He was arrested when an Indian uprising threatened in 1890 and was killed near Fort Yates, North Dakota, during an attempt at rescue.

Sitatunga, animal, 4-1443

Six Nations, Indian confederacy, formed by

Five Nations and Tuscarora Indians, 2-554

See also Five Nations; Iroquois Indians

Size

Question about. What do we mean when we speak of size? 2-463

See also Weights and Measures

Size, paper filler, 7-2450

Skates, fishes, 16-5774

Pictures, 16-5779; (in color), 16-5783

GENERAL INDEX

Skeleton

- * Animals with backbones, 1-255-59
- * Head and the limbs, 5-1673-77
- * In animals and man, 5-1559-63
 - of whale, 6-2214
 - See also Bones; Skull
- Pictures*
 - man and elephant compared, 7-2361
 - of diplodocus, 1-257
 - of human body, 13-4618
 - of mouse, 1-257
- Skelton, Oscar Douglas**, Canadian writer, 15-5368
 - Picture*, portrait, 15-5368
- Skiing**, description of ski, 10-3696
 - directions for making ski, 16-5979
 - in Canada, 10-3696
 - in polar exploration, 10-3696
- Pictures*, 10-3697
- Skim milk**, uses of, 1-382
- Skimmers**, birds, 11-4122
- Skin**
 - * Covering of our bodies, 4-1415-20
 - dimples, how caused, 12-4506
 - sensations of, 4-1419-20
 - structure, 4-1416, 1418
 - waterproof quality, 4-1416
- Questions about*
 - If our skin is waterproof, how does moisture penetrate it? 14-5224
 - What happens to our skin when we blush? 1-188
 - Why is the skin of the negro black? 7-2609
- Pictures*
 - how a wound is healed, 4-1417
 - negro and white compared, 4-1417
- Skinks**, lizards, 14-5234
 - Picture*, 14-5231, 5233
- Skins** of animals
 - unit of value in fur trade, 12-4340
 - uses as leather, 5-1550-51
- Skrzynecki, Jan Boncza**, see Poetry Index for poem and note
- Skuas**, birds, 11-4124
 - Pictures*, 11-4123
 - arctic skua (in color), 8-2899
 - great skua (in color), 9-3130
 - mother and chick, 8-2761
- Skull**
 - * In animals and man, 5-1673-75
 - connection with backbone, 5-1563
 - fracture of, 13-4847
 - shape of, 4-1355
 - size of, and brain, 8-2943-44
- Pictures*, showing differing brain space, 5-1673
- Skullcap**, plant, 16-5878, 5880
 - Pictures*, 16-5878
 - greater skullcap (in color), 16-5883
- Skulpin**, fish
 - Picture*, yellow skulpin (in color), 16-5784
- Skunk cabbage**, plant, 17-6274
 - on Pacific coast 19-6928
- Pictures*, 17-6272; 19-6929
- Skunks**, animals, 3-873
 - fur farms for, 13-4696
- Pictures*, 3-868, 869; 13-4698
- Skunkweed**, see Rocky Mountain bee plant
- Sky**, blue color, reason for, 1-188
 - distance from us, 3-876
- Questions about*
 - Could the sky fall down? 12-4279
 - Do we know how far the sky goes? 3-876
 - How far off is the sky? 1-188
 - Where are the clouds when the sky is quite clear? 13-4595
 - Why is the sky blue? 15-5518
 - Why is the sky in Italy so blue? 17-6179
- Sky-writing**, how produced, 13-4825
- Skye**. Largest of the Inner Hebrides; area, 643 square miles. Wild and rugged, it has six mountains over 3,000 feet high, stock-raising and fishing being the only industries.
 - and Prince Charlie, 15-5643
- Picture*, huts, 15-5639
- Skye terrier**, 2-718
 - Picture*, 2-716
- Skylarks**, account of, 9-3133-34
 - Missouri, name for American pipit, 9-3136
- Poems about*
 - The Skylark, by James Hogg, 3-1142
 - To a Skylark, by P. B. Shelley, 16-6021
 - To a Skylark, by Wordsworth, 11-4034
 - To the Skylark, by Wordsworth, 7-2529
- Pictures*, 9-3137; (in color), 9-3132

Skyscrapers

- Question about*. What is the meaning of skyscraper? 18-6555-56
- Slabsides**, John Burrough's cabin, 19-7058
- Slag**, 6-1938, 1946
- Slang**. Words and phrases not recognized as standard but in common use, especially among the lower classes. Frequently slang words become so much a part of a language that they become standard. Sometimes these slang words are mere jargon, originating with a special class, such as race-track followers, tramps, etc. Sometimes they are standard words to which an entirely different meaning has been given. Slang is more or less a part of everyday conversation, of all classes of society, though each class may use a different form.
- Slate**, formed from Cambrian rocks, 3-905-06
 - Picture*, cleaving and folding, 6-2071
- Slate**, writing-slate
 - Question about*. Why will pen and ink write on paper better than on a slate? 14-5087
- Slate pencils**, writing of, 4-1356
- Slave trade**
 - and Sir John Hawkins, 14-4962
 - approved, Elizabethan period, 14-4962
 - Baker attacked, in Sudan, 2-471
 - to America, 2-466
 - to West Indies, 19-7099
- Slavery**
 - among ants, 17-6356-57
 - among Boers, South Africa, 9-3048
 - Benjamin Franklin and, 4-1248
 - cost of abolition in British territory, 7-2296
 - in Brazil, abolishment of, 19-7042
 - in early England, slaves protected by Dunstan, 8-2845
 - in Jamaica, 19-7102
 - in United States
 - effect of cotton on, 5-1627
 - history to Missouri Compromise, 6-1912, 1914
 - introduced into Virginia, 1619, 2-546
 - in West Indies, 19-7099
 - Picture*, English slaves freed by Christian owners, 8-2846
- Slavic languages**, origin of alphabet, 10-3548
- Slavs**. The name of the group of people inhabiting Eastern Europe, including the Russians, Poles, Wends, Czechs, Slovaks, Jugo-Slavs and modern Bulgarians.
 - pressure on Teutonic tribes, 11-3959-60
- Sled**, directions for making, 6-2041-42
 - how to use, 6-2042
- Sleep**
 - account of, 1-78
 - benefits from, 5-1749
 - cause of, 5-1749
 - rules for, 2-628
- Poems about*
 - Fly-Away Horse, by Eugene Field, 11-4111
 - Shut-Eye Train, by Eugene Field, 9-3108
- Questions about*
 - Do fishes close their eyes and sleep under water? 10-3474
 - Do we always wake when we have had enough sleep? 5-1609
 - Does a flower sleep at night? 15-5520
 - Does a plant go to sleep? 2-685
 - How do we know we have dreamed when we wake up? 6-2123
 - Where am I in my sleep? 5-1749
 - Why cannot we grasp a bat tightly when we first wake up? 4-1356
 - Why do we sleep? 17-6175
 - Why is it dangerous to sleep in a damp bed? 4-1230
 - Why must a baby have more sleep than a grown-up? 2-687
 - Why, when I wake, do I seem to have just gone to sleep? 10-3732
- Sleeping Beauty**, story of, 19-7006-07
- Sleeping-cars** on trains
 - description and picture, 2-415
 - invention of, 19-7211-12
- Sleeping-sickness**, cure for, 13-4531
 - spread by tsetse-fly, 15-5492; 17-6422-23
- Sldell, John**, and Trent affair, 7-2424
- Sligo**. County of Connaught, Ireland; area, 690 square miles; capital, Sligo.
- Silp**, clay-and-water mixture, 7-2512
- Sloane, Sir Hans**, and British Museum, 12-4358
- Slocum, Samuel**, invented machine to stick pins into paper, 9-3042

GENERAL INDEX

- Sloes**, fruit of blackthorn, 12-4383
Picture, fruit (in color), 11-4027
- Sloop**, sailing-vessel, rig of, 11-4086-87
- Sloths**, account of, 7-2394, 2396, 2400
 giant, in ancient times, 7-2396-97
 prehistoric ancestors of, 1-95
Pictures, 7-2395
- Slovenes**. A Slav people in Jugo-Slavia, chiefly to be found in Carniola, Styria and South Carinthia. Tall, round-headed, they are an intelligent, industrious, musical, sociable and independent people.
- Slowworm** or blindworm, 14-5232
- Slugs**, shell-less molluscs, 19-6890
Pictures, 19-6882
 sea slug, 19-6891
- Sluter, Claus**, sculptor, 13-4700
Picture, Well of Moses, in monastery of Champmol, 13-4702
- Sluys**, naval battle of, 5-1682
- Smallpox**
 vaccination, discovery and usefulness, 8-2728
Question about. Why does vaccination save us from smallpox? 7-2485
- Smell**
 * smell and taste, 11-3955-58
 man's and animal's compared, 8-2946
Questions about
 Is smell a wave in the air? 5-1753
 Why do we lose the sense of smell when we have a cold? 5-1809
 Why do smellings-salts revive us? 10-3730
- Smelt Family**, fishes, 16-5776
- Smelting**, coal first used for, 3-790
- Smerwick**, Ireland, Raleigh crushed rebellion at, 14-4966
- Smibert, John**, painter in American colonies, 9-3325
- Smilax**, shrub, 13-4783
- Smilax Family**, yields sarsaparilla, 8-2911
- Smiley, Maurice**, *see* Poetry Index, for poem and note
- Smirke, Sir Robert**, British architect
 work in London, 12-4358, 4360
- Smith, Adam**, economist, and division of labor, 14-5245
 effect of his *Wealth of Nations*, 7-2294
 quotation on taxes, 13-4554
- Smith, Benjamin Leigh**, arctic explorer, 13-4712-13
Picture, portrait, 13-4707
- Smith, Sir Francis**, improved screw propeller, 17-6404
- Smith, Goldwin**, and Canadian literature, 14-5110
- Smith, Capt. John**
 * life of, 14-4970-71
 first American statesman, 10-3487
 reports for Virginia Co., 12-4445
 work in Jamestown, 2-544
Pictures
 portrait, 2-549
 meets an Indian in London, 14-4969
- Smith, John W.**, at wreck of the *Larchmont*, 14-5121
- Smith, Joseph**, founder of Mormonism, 6-1920
- Smith, Ross**, aviator, 1-178
- Smith, Samuel Francis**, wrote song, *America*, 18-6513
See also Poetry Index, for poem and note
- Smith, Spencer**, with Shackleton in Antarctic, 14-5101
- Smith, Theobald**, physician, 15-5486, 5488
- Smith, William**, geologist, 6-2069
- Smithsonian Institution, The**. An institution in Washington, D. C., devoted to the "increase and diffusion of knowledge among men." It was founded in 1846 as a result of a legacy for that purpose bequeathed to the United States by James Smithson, an English chemist and mineralogist. It has been the parent of several scientific bodies which later became government departments. The Institution carries an original research work in science and publishes pamphlets and memoirs on scientific subjects.
- Smoke**
 causes fog, 8-2922
 directions for making rings from vortex box, 13-4846
 made up of solid matter, 6-2250; 8-2922
Questions about
 Does smoke always come from a fire? 15-5517-18
- Smoke—Questions about (continued)**
 Does the smoke of a train go the opposite way to the train? 2-585
 Is it a sign of rain when the smoke blows down the chimney? 12-4279
 What becomes of the smoke we see? 2-460
 What is smoke made of? 11-3979
 Why does a chimney smoke? 8-3014
 Why does a factory have a tall chimney? 4-1232
 Why does smoke go up the chimney? 8-3015
 Why has not smoke a force like steam? 6-2250
- Smoke signals**, used by Indians, 5-1768
- Smokeless powder**. A form of gunpowder that burns or explodes without developing much smoke. It is used largely in modern warfare for rifle and gun ammunition and also in ammunition for sporting rifles.
- Smollett, Tobias**, writings of, 6-2256
Picture, portrait, 6-2255
- Smudge-graphs**, how to make, 12-4502
- Smut**, disease of oats, 5-1851-52
- Smyrna**. Chief port of Asia Minor and terminus of two railways. Founded by the Greeks about 1000 B.C., it has been important practically ever since, and has a great export of carpets, beans, barley, fruit, cotton and tobacco.
 political control, 18-6458
Pictures, 13-4810
- Smyth, William**, of Burton Port
 heroism of, 6-2008
- Snails**
 can live without food, 2-457
 description, 14-5201; * 19-6889-90
 endurance of, 19-6890
 prehistoric, enormous size, 19-6884
 teeth of, 19-6889
Poems about
 Butterfly and the Snail, by John Gay, 7-2638
 The Housekeeper, by Charles Lamb, 18-6754
Question about. What has happened to the snails from all the empty shells? 14-5085
Pictures, 19-6882, 6887, 6891; (in color) 19-6893-94
- Snake-bird**, name for anhinga, 11-3882
- Snake dance**. A tribal dance of the Hopi Indians of northeastern Arizona, in which the performers handle live rattlesnakes.
- Snake River**. American river rising in Yellowstone National Park, Wyoming, and flowing into the Columbia River. 950 miles.
- Snakeroot**, Black, plant, 16-5728
- Snakes**
 * account of, 15-5409-16
 belief of the ancients in healing power of serpents, 8-2722
 method of crawling, 15-5410
 poison glands, 6-1929
 story about, *Battle with snakes*, by Waterton, 4-1530-31
 superstitions about, 1-359
Poem about. Child and the Snake, by Charles and Mary Lamb, 7-2528
Questions about
 Can poisonous snakes bite without poisoning? 5-1810
 What makes the poison in a snake's fang? 16-5842
 * *Pictures*, 15-5409-15
 Hindu snake-charmer (gravure), 8-2834
- Snake's-head**, flower, 16-5873, 5876
Pictures, 16-5873; (gravure), 19-7174; (in color), 16-5884
- Snakeweed**, reason for name, 13-4875
- Snapp**, card game, 15-5514
- Snapdragon**, flower
 English name for butter-and-eggs, 15-5392
Pictures, (in color), 15-5399
 great snapdragon, 14-4995
- Snapper Family**, fish, 16-5780
- Sneezing**, how excited, 11-3957
Question about. What makes us sneeze? 17-6176
- Snipe**, bird, 14-5020
Pictures, 11-4011; (in color), 9-3132
- Snorri Sturlason**, historian and saga-collector, 19-7010
- Snorro**, Norse child
 born in America, in year 1007, 3-965
- Snow**
 cause and formation, 8-2923

GENERAL INDEX

Snow (continued)

- crystals, snowflakes, 14-4906
 story about, Little Agnes of the Snow, 19-6879
 used for houses by Eskimos, 7-2564
Poems about
 Nearing the Snow-line, by O. W. Holmes, 19-6874
 Snow-flakes, by H. W. Longfellow, 3-1141
 Snow-storm, by R. W. Emerson, 8-2906
Questions about
 How does salt melt snow? 12-4505
 What is the difference between snow and hail? 18-6556
 Why do mountains get no higher though snow falls on them? 6-2250
 Why is a snowflake lighter than a raindrop? 9-3101
 Why is the snow white? 18-6694
Pictures, 14-4904-12
 crystals, magnified, 14-4904
 in the Alps, 16-6003, 6009-10
Snow buntings, birds, 13-4832
Snow-leopard, description, 2-501
Snow-plows on railroads, description and pictures, 2-413
Pictures, with notes, 14-5223
Snowball, bush, 11-4020
Snowball, name for guelder rose, 14-4972
Snowberries, 11-4020
 on Pacific coast, 19-6939-40
Picture, fruit (in color), 11-4026
Snowbird, western, name for Oregon junco, 14-5147
Poem about. Secret Song, by E. R. Macdonald, 8-2902
Snowdon. Highest mountain in England and Wales, in Carnarvonshire. 3,590 feet.
Snowdrop, flower, 19-7172
Picture. (In color), 14-4991
Snowdrop and the dwarfs, story, 7-2597
Snowflakes, birds, 13-4832
Soap
 how to make, 1-130
 toy animals carved from, 18-6779-80
Question about. Why cannot we wash the color out of soap? 16-5846
Soap bubbles, explanation of, 3-979-80
Questions about
 How does a soap bubble hold together? 3-979
 What makes a soap bubble rise and fall? 3-980
Picture, showing surface tension, 3-979
Sobieski, see John III, Sobieski
Sobieski, Maria Clementina, wife of "the Old Pretender," 15-5639
Soccer. kind of football, 19-6961
Social Contract, Rousseau, 6-2128
Social reforms in England, 19th century, 7-2294, 2296
Society, Theory of
 * Ourselves and the nation, 19-6875-78
Society Islands. Pacific archipelago belonging to France. Tahiti, 600 square miles in extent, is by far the largest island, and produces fruit, vanilla, copra and phosphates.
 discovery and description, 7-2571
See also Tahiti
Society of American Artists, founding, 9-3334
Society of Canadian Literature, founded by W. D. Lighthall, 14-5108
Society of English Artists
 developed into Royal Academy, 7-2328
Society of Jesus, see Jesuits
Sociology
 * Ourselves and the nation, 19-6875-78
Socks. directions for knitting, 13-4851-52
Socotra, island, 9-3182
Socrates. Greek philosopher
 * life and teachings, 16-5915-17, 5920
 and Plato, 16-5918
 death, 3-1081
Pictures
 about to die a martyr's death, 16-5915
 ancient sculpture of Socrates, 16-5914
 talking on eternal justice (sculpture), 16-5917
Soda
 caustic, purifies air for divers, 12-4186-87
 sodium bicarbonate in blood, 3-938
Sodium, basis of salt, 3-925
Sodium bicarbonate, see Soda

- Sofia**. Capital of Bulgaria, on the Vienna-Constantinople railway. Largely rebuilt since 1892. it has a cathedral and a considerable trade.
 description, 14-4926
Picture, 14-4925
Soft-bone, fish
Picture (in color), 16-5786
Soil
 earthworms' improvement of, 19-7143-44, 7146-47
 frost helps pulverize, 11-4135
 rain's sinking into, 11-4133
 way of improving, 13-4522
See also Fertilizers
Soissons. Ancient French city on the Aisne. 65 miles north of Paris. The beautiful 12th-century cathedral was ruined during the World War.
Sol, in ancient mythology, 9-3233
Solan geese, see Gannets
Solanum, Black, see Nightshade—black
Solar plexus. A network of nerves behind the stomach from which nerve filaments extend throughout the abdomen. In boxing, a blow on the pit of the stomach causes temporary collapse by paralyzing the nerves.
Solar system
 comets and meteors, 10-3665-72
 dissipation of energy of, 15-5571-72
 distances and sizes of planets, 9-3180
 origin, 1-141-44
See also Planets; Sun
Pictures, 1-25
 showing comparative sizes of planets, 9-3179
 showing paths of planets, 1-23
Soldanella, alpine plant
 grows under snow, 2-458
Picture, 2-459
Soldering, directions for, 2-747-48
Soldiers
 military songs and their writers, 10-3608
Poems about
 Battle of Blenheim, by Southey, 2-483
 Before Action, by W. N. Hodgson, 10-3738
 Bivouac of the Dead, by Theodore O'Hara, 8-2767
 Blue and the Gray, by F. M. Finch, 10-3643
 Burial of Sir John Moore, by Wolfe, 2-607
 Charge of the Light Brigade, by Tennyson, 5-1778
 Dirge for a Soldier, by G. H. Boker, 3-1006
 Eve of Waterloo, by Byron, 8-2766
 I Heard a Soldier, by Herbert Trench, 3-1139
 Incident of the French Camp, by Robert Browning, 12-4350
 Little Giffen, by F. O. Ticknor, 6-2242
 Song of the Camp, by Bayard Taylor, 6-2034
 The Soldier, by Rupert Brooke, 12-4273
 Torch of life, by Newbolt, 8-3005
Question about. Why do soldiers break step while crossing a bridge? 7-2485
Soldier's uniform for boy, directions for making, 15-5339
Sole, fish, 16-5779
Pictures (in color), 16-5782
 lemon sole, 16-5782
Solenodon, animal, 1-320
Picture, 1-317
Solferino. Battle of, 12-4411-12
Solid. In geometry, a body which has length, breadth and thickness.
Solingen, Germany, cutlery centre, 4-1306
Solitaire, extinct bird, 12-4284
Picture, 12-4283
Solomon, King of Israel, 19-7156
Solomon, Temple of, Jerusalem, 19-7156
Picture, model of temple, 19-7155
Solomon Islands. British island group in the Pacific Islands colony; area, 11,000 square miles. Ebony, sandalwood, copra and pearl-shell are exported.
 discovered by Alvaro de Mendana, 9-3204
 population, and nation ruling, 9-3186
Pictures, 9-3185, 3297
Solomon's seal, flower, 17-6280; 19-7171
Solon, Greek lawgiver, 2-703
Picture, portrait, 2-701
Solstice, meaning of, 8-2792
Solution. The state of being dissolved: the changing of matter from a solid or gaseous state to the liquid state by means of a liquid.
Solyman, Turkish Sultan, see Suleiman
Somaliland. East African territory comprising British, French and Italian Somaliland. French

GENERAL INDEX

Somaliland (continued)

Somaliland exports the coffee and ivory of Abyssinia through Jibuti and Obock, and has an area of 5,790 square miles; Italian Somaliland, capital Magadodo, covers about 154,000 square miles, and is mainly pastoral.
may be ancient Punt, 11-3910
races in, 9-3047

Somaliland, Brit. sh. 9-3054

Some famous ladies of the White House,

* 2-391-396

Some men who loved nature, * 19-7051-58

Some of our historic shrines, * 13-6325-39

Some other famous Presidents, * 19-7193-7200

Somme. River of Picardy, France, flowing past St. Quentin, Péronne, Amiens and Abbeville to enter the English Channel. During the World War four important battles were fought in this area. 150 miles.

Somnambulism. The act of walking about and performing apparently ordinary acts while in a state between sleeping and waking. Often the word "sleep-walking" is used to express the same meaning.

Somnus, god of sleep, 9-3235

Song of Roland, in French literature, 18-6560

Songs

* Song-writers of the United States, 18-6509-15

* Writers of famous songs, 10-3605-12

folk songs, account of, 16-5739-40

national songs of countries, 17-6253-56

Question about. What is a folk song?

16-5739-40

Songs, Patriotic, see Songs, National; Canada—songs, patriotic; England—songs, patriotic; Scotland—songs of; United States—songs, patriotic

Songs with music

Baa, baa, black sheep, 5-1782

The bees, by A. P. Graves, 4-1519

Bogie man, by A. P. Graves, 15-5527

Child's evening prayer, 2-611

Curly Locks, 4-1386

Dance a baby, 7-2530

Dipsy-dog-bell, 11-4120

A frog he would a-wooing go, 18-6470-71

Girls and boys, come out to play, 3-1010,

7-2641

Hickory, dickory, dock, 3-1147

Hush-a-bye Baby, on the tree top, 8-2770

I love sixpence, 10-3743

Jack and Jill, 18-6652

Ladybird, fly (German folk-song), 7-2367

Little Bingo, 5-1890

Lover and his lass, by W. Shakespeare,

11-3935

M. N. O., by A. P. Graves, 16-5712

O dear, what can the matter be? 14-5242

O willow, willow, by W. Shakespeare, 11-3936

Old King Cole, 11-4118-19

Oranges and lemons, 16-5932

Polly, put the kettle on, 7-2643

Pussy-cat, where have you been? 11-4117

Ride a cock-horse, 19-6996

See-saw, Margery Daw, 2-739

Song of sixpence, 2-610; 16-5928

What are little boys made of? 6-2248

Where are you going to, my pretty maid?

2-741

The white hart, by A. P. Graves, 19-6984

Who is Sylvia? by W. Shakespeare, 11-3934

Sonnet, definition, 1-223

Sonnets

Composed upon Westminster Bridge, by

Wordsworth, 12-4350

From you I have been absent in the Spring,

by Shakespeare, 2-724

God's fool, by Webster, 14-5128

How do I love thee? by Mrs. Browning,

15-5647

Life, by van Dyke, 12-4272

Little Sophy by the seaside, by Turner,

16-5923

London, 1802, by Wordsworth, 12-4349

Love, by Van Dyke, 12-4272

Nature, by Longfellow, 14-5238

On first looking into Chapman's Homer, by

Keats, 5-1645

On his blindness, by Milton, 17-6378

On his having arrived to the age of twenty-

three, by Milton, 1-328

On the grasshopper and the cricket, by Keats,

18-6799

Sonnets (continued)

Quiet work, by Arnold, 18-6650

Shakespeare, by Arnold, 7-2365

Shall I compare thee to a summer's day? by

Shakespeare, 2-724

The Soldier, by Rupert Brooke, 12-4273

The world is too much with us, by Words-

worth, 19-6989

To the Lord General Cromwell, by Milton,

12-4349

What the sonnet is, by Lee-Hamilton, 12-4475

When I have fears, by Keats, 3-1141

Why I abandoned you, by Kettle, 9-3110

Work, by van Dyke, 12-4272

Sons of Daniel Boone, society, 12-4451

Soochow. Chinese silk-manufacturing centre on the Imperial Canal, 55 miles from Shanghai.

Sophocles, Greek dramatist, 16-5752

Picture, portrait, 16-5747

Sorbonne. One of the colleges of the University of Paris. It was founded about 1250 by Robert de Sorbon (or Sorbonne), Chaplain of Louis IX, and was originally a theological college. The Faculty of Theology disappeared after the French Revolution. New buildings were erected in 1889, called the New Sorbonne.

Sorel, Canada, 6-1962

Sorghum, sugar from, 10-3420

Picture, 5-1850

Sorolla y Bastida, Joaquin, Spanish painter,

8-2854

Picture. Beaching the Boat, 8-2855

Sorrel

mountain, description, 15-5602, 5605

See also Wood-sorrel

Pictures

garden sorrel (in color), 15-5612

mountain sorrel, 15-5605

Soto, Hernando de, see De Soto, Hernando

Soult, Nicholas Jean de Dieu, 6-2206

Sound

* Behavior of a sound, 19-6851-55

* Music and noise, 18-6437-39

* Waves of sound, 17-6313-16

* Wonderful, wonderful music, 18-6695-6700

affected by wind, fog, temperature, 2-586

caused by vibration, 12-4156

designs made by voice, 10-3554

diagram showing how sound is heard, 9-3365

difference between noise and music, 5-1750

discord, cause of, 19-6855

drawing picture of a sound, 18-6439

echo, explanation of, 12-4504

how passes through glass, 11-3977

how produced by wind, 11-3841

in piano, how made, 5-1797

loudness, law of, 17-6314

means for hearing in ear, 9-3306, 3308-10

music from drinking glasses, 15-5333

musical instruments from old bottles, 17-6387

notes, meaning of term, 19-6854

overtones, account of, 19-6851-55

pitch depends on ether vibrations, 11-3804

pitch variation, reason for, 11-4132-33

reflection of, 17-6315

refraction of, 17-6316

speed of, 2-586; 17-6314

travels farther on water, 3-980

voice pictures, 17-6145

waves of sound

waves and talking machines, 1-261

waves compared with light-waves,

16-5811-12; 17-6183, 6313-15

meeting of waves causes throbbing, 19-6855

See also Hearing; Voice

For list of main articles, see 20-7620

Questions about

Does sound always travel at the same rate

as through air? 2-457

Does sound travel in straight lines? 2-586

How can sound come into a room through a

wall? 12-4279

Is it true that sound goes on forever?

12-4399-4400

What do we mean by the length of a sound-

wave? 8-3016

What makes an echo? 12-4504

What makes the sea roar? 9-3102

What makes the wind whistle? 11-3841

What was the first stringed instrument?

13-4594

When we sing a note to the piano, why does

it answer? 5-1760

GENERAL INDEX

Sound—Questions about (continued)

- Why can we hear a noise like waves in a seashell? 5-1605
- Why can we hear a whisper across the dome of St. Paul's? 4-1450
- Why do empty vessels sound more than full ones? 5-1810
- Why do our voices sound hollow in an empty hall? 6-2122
- Why do we see the flash from a gun before we hear the noise? 10-3475
- Why does a bee make a humming sound? 3-1116
- Why does a popgun go pop? 13-4593-94
- Why does a stick make a noise when swung in the air? 12-4281
- Why does a trumpet make the phonograph louder? 14-5224
- Why does a tuning-fork sound louder when it touches wood? 14-4952
- Why does a violin string change its note when held down? 8-2719
- Why does fog deaden sounds on the sea? 4-1451
- Why does my voice seem louder if I put my hands over my ears? 18-6554
- Why does the kettle sing? 11-4134

Pictures

- designs made by voice, 10-3574
- record of, 18-6437
- showing how far waves travel through air, steel and water, 17-6313

Sounder, telegraph, 17-6050

South, in U. S., see Southern states

South Africa

- climate, 9-3050
- discovered by Portuguese, 9-3048
- * history, 9-3048, 3050
- Boer War, 7-2299-2300; 9-3050
- founding of colonies, 9-3048
- World War, 7-2300; 9-3050
- plateaus in interior, 9-3050; 18-6805
- products, 9-3052
- Union of South Africa
- formation, 7-2300; 9-3050
- government, 9-3050

Pictures

- memorials of Cecil Rhodes, 9-3051
- wooded country in Rhodesia, 7-2418

South African War, 7-2299-2300; 9-3050

South America

- * Republics of South America, 19-6975-83, 7033-50

* **South America and its conquerors**, 19-6857-64

- Bolivar's influence, 13-4591
- Humboldt's travels in, 2-591
- Indian tribes, before Spanish conquest, 19-6858-61

- map, 19-6856
- physical geography, 19-6857-58
- water power, 15-5430

See also names of countries

South Australia, state, 7-2470

South Carolina. One of the South Atlantic states; area, 30,989 square miles; capital, Columbia. Besides cotton, much phosphate rock is exported; third state in cotton-manufacturing. Charleston is the largest city and the chief port. Abbreviation, S. C. Nickname, "Palmetto State." State flower, the yellow jessamine. Motto, "Dum spiro, spero" (While I breathe, I hope). Named in honor of Charles II of France, or Charles I of England. First settlement is thought to have been made at Old Charleston in 1670.

called Palmetto State, 13-4638

described in Southern States, 13-4517-28;

- 14-4886-4900
- history (arranged chronologically)
- early settlements, 2-553
- land bought back by king, 2-554
- signers of Declaration of Independence, 20-7557

in Revolution, 4-1162, 1166, 1176-72

signers of Constitution, 20-7574

ratified Constitution, 20-7559

threatened nullification, 6-1916; 10-3492

early railroads, 5-1618

secedes from Union (Dec. 20, 1860), 7-2430

in Civil War, 7-2432-33, 2438, 2442

grows corn, 8-2678

grows cotton, 8-2783

introduction of rice, 5-1854

manufactures cotton, 8-3214; 14-5168

South Carolina (continued)

Pictures

- battle of Cowpens, 4-1171
- Charleston and Columbia, 14-4899
- cultivating rice, 5-1855
- flag (in color), 19-7199
- granite quarry, 13-4528

South Dakota. One of the North Central states; area, 77,615 square miles; capital, Pierre. Here are several Indian reservations. Farming, stock-raising and mining for gold, silver and lead are carried on. Abbreviation, S. Dak. Nickname, the "Swiatecat State" or "Sunshine State." State flower, the Pasque flower. Motto, "Under God the people rule." Dakota is an Indian word meaning "alliance of friends." First settlement is thought to have been made at Yankton about 1859.

described in North Central States, 15-5273-84;

17-6037-48

in Louisiana Purchase, 5-1792

produces gold, 9-3268

seen by Lewis and Clark, 5-1703

statehood granted, 11-3944

Wind Cave Park, 7-2291

Pictures

flag (in color), 19-7191

Mulehead ranch, 15-5276

South Georgia, whaling settlement, 9-3188

Shackleton at, 14-5101

South Hadley, Mass.

first canal in U. S., 13-4787

South Island, New Zealand, 7-2574, 2576

South Magnetic Pole, see Magnetic Poles

South Pole

* search for, 14-5089-5101

discovery by Amundsen, 1911, 14-5094, 5096

length of days and nights, 8-2782

map of region surrounding Pole, 14-5091

Questions about

Do the people at the Poles spin round like

a top? 6-2252

Does the Equator go round faster than the

Poles? 14-5222

South Sea Bubble, 6-2097

South Seas

* Islands of the South Pacific, 9-3205-3204

books about, 9-7294

British possessions, 9-3186, 3188

commerce, 9-3304

description of, 7-2571

fresh water in the sea, 2-584

traders' evil practices, 9-3296

See also Oceania

Pictures

South Shetlands. Uninhabited island group in the South Atlantic, a dependency of the Falkland Islands. The seal fishery is important.

Southampton. Port of Hampshire, England, at the head of Southampton Water. 79 miles from London, it is a great port for transatlantic liners, and has large engineering industries.

Docks cover 300 acres.

Southern Alps, New Zealand, 7-2574, 2576

Pictures

Southern Cross, ship, in antarctic exploration, 14-5091-92

Southern States: * 13-4517-28; 14-4889-4900

agriculture, 13-4520-24

birds of, 14-5017-25

characteristics before Civil War, 7-2428

child life and social customs, colonial period, 3-979, 972, 975-76

climate, 13-4520

* description, 13-4517-28; 14-4886-4900

education, 14-4899

industries, 13-4527-28

notes and pictures, 14-4891-4900

flowers of, with pictures, 18-7085-95

minerals and metals, 13-4526

ports, 14-4892

presidents from, before Civil War, 7-2429-30

rares in, 13-4517-18

reconstruction period, after Civil War, 7-2442, 2444

trade and commerce, 14-4893, 4892

transportation facilities, 14-4894

See United States—history

Pictures with notes, 13-4519-28, 14-4891-4900

rice cultivation, 5-1855

Southey, Robert, English writer, 7-1277-78

See also Poetry Index, for poems and notes

Picture, portrait, 7-2353

GENERAL INDEX

- Southwest Africa**, former German colony, 9-3052
- Sovereign**. An English gold coin weighing 123.274 grains troy and worth one pound (twenty shillings), which is \$4.86 2-3 in decimal coinage. The coin was first struck in Henry VII's reign and bore on one side a seated figure of the king, or sovereign; hence its name.
- Sovereignty**. *Internal sovereignty* has to do with the ultimate control a state has over its subjects; *external sovereignty* concerns the position of a state among other states.
- Soviet**, definition, 16-5850
- Soviet Republics, Union of**, *see* Russia
- Sow-thistle**, weed, 15-5389-90
Pictures, 15-5389
 rough sow-thistle (in color) 14-4990
- Sowbread**, flower
Picture, ivy-leaved (in color), 14-4991
- Soya bean**, 7-2614
Picture, with notes, 7-2623
- Space**, measurement of, 14-4901-02
- Spade**, how to mend, 13-4737
- Spagnoletto**, *see* Ribera, José
- Spain**
 architecture, *see* Architecture, Spanish
 cities, 14-5050
 climate, 14-5040
 colonies
 Cuba, 10-3590
 early control of Spanish-American trade, 19-6862, 6864
 in Africa, 18-6811
 loss of, 14-5046
 Mariana Islands, 9-3300, 3302
 Mexico, 19-7132-34
 Morocco, discontent in, 14-5046
 settlements in West Indies, 19-7098
 South America, government of, 19-6864
 education, 14-5048
 * history, 14-5039-46
 history (arranged chronologically)
 Carthage and Spain, 4-1362, 1364
 Roman conquest and influence, 14-5042
 Goths in, 14-5042
 Moorish conquest and rule, 14-5042-44
 unity of Spain, 14-5044
 conquests in South America, 19-6861-62
 rule over Netherlands, 15-5560, 5562
 Spanish Armada defeated by England, 5-1820
 in Napoleonic Wars, 6-2205-06; 14-5046
 Spanish-American War, 1898, 10-3590
 See also Moors in Spain
 language, *see* Spanish language
 * literature, 19-7125-30
 map, 14-5041
 mountains, 14-5039-40
 painting, *see* Painting, Spanish
 Papal Line of Demarcation, 14-5186
 physical geography, 14-5039-40
 population, 5-1606; 14-5050
 railroads, 14-5048, 5050
 resources, 14-5048, 5050
 rivers, 14-5050
 size, 14-5040
 water power, 15-5430
 For list of main articles, *see* 20-7596
 * *Pictures*, 14-5043-53
- Spalato**, Dalmatia, 5-1866
- Spaniels**, dogs, 2-717-18
Pictures (gravure), 2-713-14, 716
- Spanish-American War**, 10-3590
 letter from Spanish soldiers, 1-148
- Spanish Armada**, *see* Armada, Spanish
- Spanish bayonet**, *see* Yucca
- Spanish fly**, name for blister beetle, 18-6723
 Drake's joke about, 14-4964
- Spanish Inquisition**, 14-5044
- Spanish language**
 Castilian became language of literature, 19-7126
 Catalan dialect, in literature, 19-7130
 three branches in Middle Ages, 19-7126
- Spanish moss**, 9-3268
Picture, 9-2260
- Spanish painting**, *see* Painting, Spanish
- Spanish Succession, War of**, 11-3966
- Spark plug**, in automobile, 19-7032
- Sparrow hawk**
 account of, 10-3759
 sometimes classed as falcon, 10-3756
Pierre, raid on chaffinches, 10-3755
Pictures (gravure), 10-3764
- Sparrows**, birds
 account of, 8-2973; 13-4834-35
 English sparrows
 account of, 8-2973
 in America, 13-4834
 Java, description, 8-2972
 of western North America, 14-5146-47
Poem about, The Canadian Song-Sparrow, by Sir James Edgar, 10-3482
Pictures, 8-2975
 chipping sparrow (in color), 13-4843
 English sparrow (in color), 9-3131
 Gambel's sparrow, 14-5147
 hedge sparrow (in color), 8-2898
 nest and eggs, chipping sparrow, 8-2971
 rusty song sparrow (in color), facing 14-5133
 song sparrow (in color), 13-4843
 tree sparrow (in color), 8-2900
- Sparta**, Greek state
 conquered Athens and ruled Greece, 3-1081
 Corinthian War, 3-1081
 early history and laws, 3-1072, 1074
 resisted Persians at Thermopylae, 3-1078
Picture, gymnasium, 3-1075
- Spasms**, explanation of, 10-3475
- Spatterdock**, narrow-leaved, 19-7090
Picture, 19-7093
- Speaker**. *Question about*. Who is the speaker of the House of Commons? 11-4135
- Spear-thistle**, weed, 15-5390
- Specie**. Coin; metallic money; a medium of exchange (gold or silver) coined to standard weights and values. Sometimes refers to coins of the baser metals.
- Species, Variation of**, in plants, 4-1390
 Mendel's experiments, 12-4492
- Specific gravity**
 * account of, 14-5035-38
 how measured, 14-5036-37
 of gases, 14-5038
 table for various substances, 14-5037-38
- Specific-gravity bottle**, 14-5037
- Spectator**, early English periodical, 5-1621
- Spectroheliograph**, invented by G. E. Hale, 1-288
- Spectroscope**, instrument
 * explanation of, and use, 11-3922-26
 use in astronomy, 1-286
- Spectrum**, how produced, 16-5810-11
 Fraunhofer's lines in, 16-5811
- Spectrum analysis**, 16-5811
 explanation, with colored illustrations, facing 11-3920-21
 gases in stars shown, 11-3923-24
See also Spectroscope
- Speech**
 * account of, 10-3555-61
 and brain centre, 9-3062
 consonants important for clearness, 10-3561
 of animals, 3-978
 variety of tone, 10-3557-58
See also Voice
Questions about
 Do animals talk to one another? 3-978
 How did men learn to talk? 15-5515-16
 Who began talking and writing? 8-2871
- Speed**, Harold, artist
Picture. Scene from As You Like It, 3-839
- Speeder**, to measure wind
 how to make, 4-1391
- Speedometer**
Question about. How does the speedometer of a motor car work? 1-75
Picture, 1-76
- Speedwell**, ship, 2-548
- Speedwells**, flowers
 germander, 14-4980
Picture, germander speedwell, 14-4979
Pictures (in color), 14-4992
 field speedwell, 14-4994
 germander speedwell, 13-4880
 ivy-leaved speedwell, 15-5398
- Speke**, John Hanning, African explorer, 2-479-71
Picture, portrait, 2-465
- Spencer**, Herbert, English philosopher
 life and work, 2-595
 and dissipation of energy, 15-5572
 as an author, 11-4002
Pictures, portrait, 2-589
 portrait, with parents, 15-5619
- Spending and saving**, * 17-6359-62
- Spenser**, Edmund, English poet
 life and writings, 3-1118-20

GENERAL INDEX

Spenser, Edmund (continued)

Pictures

portrait (in group), 3-1117, 1122
scene from Faerie Queene, 3-1121

Sperm oil from whales, 6-2216

Spermaceti. A fatty substance or wax found in the blubber and in the adipose tissue of the cavity of a sperm-whale's head. It is used for making wax candles and in ointments and toilet preparations.

Sphagnum, see Bog-moss

Sphinx, imaginary creature, 1-355

story about, Riddle of the Sphinx, 18-6610

Sphinx in Egypt, statue

age of, 14-5211

description, 3-815; 11-3875

Pictures, 1-352; 3-819

Sphinxes in Egyptian art, 11-3875

Picture (gravure), 11-3878

Spice plants, * 8-2991-3000

Spices

* spice plants, 8-2991-96

Pictures, plants producing (in color), 8-2998

Spicknel, flower

Picture (in color), 15-5609

Spiders

* description, 16-6014-18

description, for game, 8-2880, 3023

web used in surveying instruments, 16-5743

Poem about, Spider and the Fly, by Mary

Howitt, 12-4269

Question about. Can a spider's web be made

into cloth? 16-5743

Pictures, 16-6010, 6017

Spiderwort, plant

Picture, growing in water, 7-2516

Spies in war, definition of, 11-3995

Spikenard, Wild, 17-6280

Picture and note, 15-5606

Spinach, vegetable, 7-2618

Spinal cord, see Spine

Spinalunza, Italy, saved by children, 9-3068

Spindle tree

Picture, fruit (in color), 11-4028

Spine

account of, 1-259; 5-1562-63

cartilage disks, 10-3732

development in animals, 1-255-56, 259

fracture of, 13-4847

spinal cord, 5-1563; 8-2840

Spinel. *Picture* (in color), facing 19-7225

Spinnet, musical instrument, 5-1796

Picture, 19-6900

Spinetail, fish

Pictures (in color), 16-5787-88

Spinetails, birds, 9-3288

Spinning

cotton, in mills, 14-5171-75

flax into linen, 9-3318

inventions of machinery for, 19-7202-04

of rope, 11-3797-98

of silk, 15-5310

Pictures

cotton mills, 14-5171-75

linen mill, 9-3321

of silk, 15-5317, 5321

wool into yarn, 15-5586

Spinning-jenny, invention of, 19-7202

Spinning-mule, invention of by Crompton,

19-7203-04

note and *picture*, 14-5173

Spinning-pictures, how to make, 17-6390

Spinning-wheel. An old-fashioned wooden machine for spinning into threads wool, cotton or flax. It has a frame, wheel, spindle and band, and is worked either by hand or by a foot treadle.

Spiny tails, lizards, 14-5232

Spizæas, various kinds, 16-5732

Picture, flowers (gravure), 19-7173

Spirit level

Question about. How does a spirit level work?

18-6553

Spirituals, see Negroes, songs of

Spitsbergen, discovered by Barents, 8-2983

coal, discovery of, 13-4712

Picture, Red Bay, 15-5290

Spleenworts, ferns

Pictures (in color), 10-3726-28

Splices, Sailors', how to make, 9-3378-79

Splicing of sticks, 12-4374

Spofford, Harriet Prescott, see Poetry Index for poem and note

Spoils system. In politics, the practice of a victorious party to eject from public offices members of the defeated party, and to reward, with the vacated offices, its own supporters. The name was given in 1832, when Mr. Marcy remarked of New York politicians, "They see nothing wrong in the rule that to the victor belong the spoils of the enemy."

Spokane. Lumbering, mining, fruit-growing and manufacturing centre in state of Washington.

Picture, 19-6844

Sponges

* account of, 8-2915-16; 19-7059-60

artificial cultivation, 8-2916

how to clean, 15-5335

Pictures, diving for and preparation for market, 8-2914-20

Spontaneous combustion, explanation of,

14-4949-50

Spontaneous generation. The supposed birth or generation of living things from non-living matter.

Spools, toys to make with, 15-5334

Spoonbills, birds, 11-4009

roseate, in North America, 14-5018

Pictures, 11-4004

roseate spoonbill (in color), 12-4370

Spoons, history, and materials used, 4-1308

Question about. Why is a silver spoon blackened by egg? 18-6552

Spoons, game, 18-6519

Sporangia, part of fern, 4-1232

Spore-bearing plants, see Cryptogams

Spores, of ferns, 4-1232

of mushrooms, 11-3906-07

Sprague, Frank J., and electric railways, 16-5804

Sprains, first aid for, 13-4847-48

treatment for, 11-4082

Sprat, fish, 16-5776

catching and packing, notes with pictures,

11-4054

Picture, 16-5779; (in color) 16-5784

Spring of water, source of, 6-2249; 15-5620

Spring, season, 2-504-06

Poems about

Coming of Spring, by Robert Buchanan, 11-4032

Home Thoughts from Abroad, by Robert Browning, 10-3736

March; May; by J. M. Gibbon, 15-5422

Walk in Spring, by M. A. Stodart, 9-3111

Welcome to Spring, by Pierre de Ronsard,

7-2364

Spring beauty, flower, 17-6275

Springbucks, animals, 4-1444

Springfield. Capital of Illinois. Famous for its association with Abraham Lincoln, who practiced law here, and whose monument and mausoleum are only a mile from the heart of the city. Springfield is the centre of a rich farming and coal-mining district; it also has horse-breeding interests.

Picture, Lincoln's home, 11-3941

Springtails, insects, 17-6078

Spruce partridge, Canada grouse, 13-4760

Spruce trees, account of, 12-4249

used in making paper, 7-2446

Picture and note, 12-4260

Spurge, plant

caper spurge or wild caper, 11-4020

Pictures

caper spurge, fruit of, 11-4023

sun spurge (in color), 15-5397

Spurge-laurel, 11-4019

Picture, fruit (in color) 11-4021

Squadron. A division of a cavalry regiment corresponding more or less to a company in an infantry regiment.

Squarcione, Francesco, and painters of Padua,

3-1103

Square. A four-sided plane figure having all its sides equal and all its angles right angles.

Square measure. The method of measuring the area of a plane surface having length and breadth. A unit of square measure is a unit of rectilinear measure multiplied by itself; for example, 1 foot multiplied by 1 foot equals 1 square foot. That is, a square foot is 1 foot long and 1 foot wide.

Squash. The fruit of a plant of the Gourd Family. The pumpkin and the Hubbard squash are the two most familiar squashes, with vegetable marrow a good third. In North America

GENERAL INDEX

- Squash** (*continued*)
squashes are used as vegetable food and for pies.
- Squatter sovereignty, or popular sovereignty.** American historical expressions referring to the right of the inhabitants of a territory to regulate their internal affairs in their own way without the intervention of Congress. "Squatter" sovereignty applied to unorganized territory inhabited by squatters, and "popular" sovereignty to an organized territory.
Stephen A. Douglas and, 7-2429
- Squaw-fish**, account of, 15-5634
- Squeteague**, name for weakfish, 16-5780
- Squids**, account of, 16-5898
as food of whales, 6-2216
Picture, 16-5895
- Squier, George Owen**, and cable messages, 17-6241
- Squill**, medicinal plant
account of, 8-2912
cultivated, 19-7172
See also Scillas
Picture (in color), 8-2999
- Squire, John C.**, English author, 12-4234
- Squirrel**, ship of Sir Humphrey Gilbert, 14-4962
- Squirrel corn**, plant, 17-6275
- Squirrel fish**
Pictures (in color) 16-5785
deep-water squirrel fish, 16-5785
red and white squirrel fish, 16-5788
- Squirrels**, account of, 3-1127-32
Poem about. Mountain and the Squirrel, by R. W. Emerson, 3-846
Pictures, 3-1129-31
gray squirrel, 13-4698
- Stadacona**, Indian village on site of Quebec, 2-678
- Stadium**. Originally a horseshoe-shaped or semi-circular grand-stand nearly surrounding an ancient Greek sports field, and having the seats arranged in sloping tiers. Olympia and Athens had the most celebrated stadia. Nowadays many colleges have erected notable stadia where football games and other sports are held.
- Staffordshire**, brine reservoir, 3-930
- Stage**
birth of English stage-writers, 2-721
for amateur theatricals, how to make, 16-5763-65
miniature, directions for making, 5-1769-70
toy, directions for building, 14-5203-04
Poem about. All the World's a Stage, by Shakespeare, 11-3933
- Stagger weed**, *see* Larkspur
- Staggerwort**, weed, 15-5350
- Stained glass**. The expression used to describe windows made of colored glass. As early as the 5th century A.D. mention is made of stained-glass windows in European churches. Figures of the saints and conventional designs were the most common subjects for this kind of art. Later private houses often had stained-glass windows of a non-religious character. Nowadays colleges, libraries and other public institutions have notable windows of this kind. There are various methods of giving color to the glass, many pieces of which go to form the window, and these pieces are held together by being set in ribbons of lead.
in churches to the 13th century, 2-582
in Gothic buildings, 17-6156
windows, 16-5967-68, 5970
in the United States, 10-3336
- Stains**
directions for staining wood, 9-3119
how to remove, 2-618
Question about. Why does ink stain while water does not? 6-2252
- Stake-driver**, name for bittern, 14-5020
- Stalactites**, explanation, 4-1302
Pictures, 4-1301
in Australia, 6-2071; 7-2473
- Stalagmites**, explanation, 4-1302
Picture, 4-1301
- Stamen**, part of flower, 2-506; 3-1013
Pictures, 2-509
- Stamp Act**, American colonies
provisions and effect, 4-1159-60
- Stamps**, Postage, *see* Postage stamps
- Stand-up merris**, marble game, 17-6389
- Standard**, Battle of the, England, 5-1568
- Standards**, use in U. S. army, 19-7184
- Standish, Miles (or Myles)**. Born, Lancashire, England, 1584; died, Duxbury, Mass, 1656. He was one of the colonists on the Mayflower. The Pilgrim Fathers appointed him captain, and he led many expeditions against the Indians. About this man Longfellow wrote his poem The Courtship of Miles Standish.
- Stand**, directions for making, 8-2878-79
- Stanford University**, 12-4318
Pictures, 12-4318
- Stanhope, Charles**, 3d earl Stanhope, invented iron printing-press, 9-3389
- Stanley, Charles**, *see* Monck, Charles Stanley, 4th viscount
- Stanley, Sir Henry Morton**, African explorer
African journeys, 2-470
and the Belgian Congo, 18-6812
rescued Emin Pasha, 2-470
Picture, portrait, 2-465
- Stanley cup**, prize in hockey, 10-3694
- Stanleyville**, Congo Free State, 18-6812
- Stanton, Edwin M.**, American statesman i. Lincoln's cabinet.
Picture, portrait, in group, 7-2426
- Stanton, Mrs. Elizabeth Cady**
life, and work for suffrage, 14-5269
- Stanza** in poetry, definition, 1-216
Spenserian, 3-1120
- Star Chamber**. An ancient English court for the trial of various offenses; abused by Charles I, who used it to raise money for his exchequer; abolished, 1641.
- Star flower**, description, 17-6278
- Star-of-Bethlehem**, plant, 19-7172
Pictures
white star-of-Bethlehem (in color) 14-4991
yellow star-of-Bethlehem (in color) 14-4992
- Star-Spangled Banner**, song, how written, 18-6512
music, source of, 18-6512
Picture of Fort McHenry, where originated, 6-2091
- Starboard**, meaning of term, 14-5003
- Starch**
digestion of, 6-2085
how fast produced by leaves, 6-2185
made by leaf, shown by experiment, 2-616
manufactured from potatoes, 7-2623-24
saliva can change to sugar, 6-1932
use as food, 6-2185
Question about. Why does starch stiffen clothes? 11-3978
- Starfish**, account of, 19-7069
Pictures, 19-7067
- Starlings**, account of, 8-2967-68
in North America, 13-4766
Pictures, 8-2969; (in color) 8-2897
- Starr**, American engineer, invented carbon lamp, 16-5938
- Stars**
* First astronomers, 1-201-06
* Men who mapped the skies, 1-279-88
* Stars in their brightness, 11-3783-90
* What is happening in the sky? 11-4037-42
* What we know about the stars, 11-3921-26
age shown by color, 11-3921
all cool in time, 9-3178
and spectrum analysis, 16-5811-12
gases in, shown by spectroscopy, 11-3923-24
are suns, 9-3039-40
distance from earth, 9-3034, 3039-40;
11-3783-86
distance, represented by picture, 11-3925
double, or binary, 11-3924, 3926
finding one's way by, 11-3787-90
heat of, 11-3923-24
how formed, 1-20
in ancient mythology, 9-3233
legends about, 6-1970-71
light from, 10-3577
magnitudes of, 11-3786
maps
Great Star man being made, 11-3786
maps of, showing constellations, 9-3035-38
maps to trace movement, 11-4042
movements of, 11-4042
numbers of, 9-3039-40; 11-3786
origin unknown, 11-4042
variable, 11-3926
See also Planets
Poems about
Little Star, by Jane Taylor, 3-1138
The Stars, by Barry Cornwall, 2-609

GENERAL INDEX

Stars—Poems about (continued)

What the Stars Have Seen, by O. W. Holmes,
5-1888

Questions about

Among the millions of stars are there worlds
like ours? 16-5840

How can we tell a star from a planet?
5-1750

How many stars are there in the sky?
16-5960-61

How many stars can we see without using a
telescope? 14-5225

Is a falling star one of the stars we see in
the sky? 18-6556

What becomes of the stars in the daytime?
13-4828

What holds the stars in their places? 11-3843

Why are there more stars some nights than
others? 11-3977

Why do the stars twinkle? 18-6550

Why do we not see the stars by day and by
night? 2-686

Pictures

part of Milky Way, 11-3785

diagram about distances, 11-3784

main stars to find one's way by, different
hours, 11-3787-90

See also Stars—maps

Stars in paper-folding
how to cut from paper, 19-6964

State, Department of. An executive division of
the United States government, presided over by
the Secretary of State, who ranks as most im-
portant of the Cabinet ministers. Through this
department are carried on all relations with for-
eign powers.

State flags of U. S., 19-7184

Pictures (in color), 19-7190-91

State flowers, list of, 17-6181

State of Franklin, now Tennessee, 6-1908

Staten Island. An island, organized as a bor-
ough of New York City and also as Richmond
County; situated south of Manhattan Island;
area, 58 square miles.

Catskill water reaches, 14-5058

States General, French parliament, 10-3564

States of U. S.
disputes, after Revolution, 5-1696-97

government, provisions in U. S. Constitution,
5-1792

* history of new ones after Revolution,
6-1905-24

See also State flags; State flowers; States'
rights; Southern states; Western states

States' rights, doctrine of, 7-2430

and J. C. Calhoun, 10-3492

Webster and Hayne argued on, 10-3494

Static, in radio, how to prevent, 17-6260

Statue of Liberty, gift to U. S. from France
11-3944

Statues, game, directions for, 4-1400

Stavanger. Great fishing port in southwest Nor-
way, with a 13th-century cathedral.

Stead, Robert J. C., Canadian author, 14-5109

Stealing, keeping object found, 14-4914-15

Steam, reason for its force, 6-2250

Question about. Why does steam put a light
out? 11-3979

Steam engines
* history of invention, 5-1611-18

and flour mills, 8-2798

Murdoch's locomotive, anecdote, 3-990

Papin made first one with piston, 17-6398

turbines, 17-6404

Question about. What makes the engine go?
2-406-07

See also Locomotives

Pictures, showing inventions, 5-1611, 1613,
1615, 1617

(in color) 2-406-07

Steam hammer, invention of, 19-7206

Steam navigation, history, early period,
17-6400-04

See also Steamboats and steamships

Steam pump, invention of, 3-790

Steam shovel. A digging-machine or excavator
worked by steam power. The huge scoop or
shovel is fastened to a boom hinged to a sup-
porting mast mounted on a movable base or car.
The engine on the car swings the mast into po-
sition and gives a downward thrust to the
shovel, forcing it into the earth. Mechanism
handled by the man in charge provides for

Steam shovel (continued)

swinging the full bucket or scoop up into a
position where its hinged bottom is unloosened
and the contents dumped.

Picture, digging iron ore, 6-1934

Steam squirt, first fire engine, 9-3159

Steam turbines, see Turbines

Steamboats and steamships
* A great ship and what it can do, 12-4415-33

* invention and improvements, 17-6397-6406

Pictures, 17-6399-6408

Stedman, Edmund Clarence, American author
13-4815

See also Poetry Index for poem and note

Steel
* Making iron and steel, 6-1935-54

Bessemer process for making, 6-1939, 1946-47;
19-7206-07

kinds, and how made, 6-1939

manufacture in U. S., 9-3214

Northern and Central states, 17-6037-38

manufacture into cutlery, 4-1305-13

Siemen's furnace, invention of, 19-7207

tensile strength of, 12-4280

use in buildings, 8-3012

architectural features, 18-6690

Pictures
blast furnaces, Woodward, Ala., 14-4891

* showing manufacture, 6-1941-54

steel works, Bilbao, Spain, 14-5053

Steel rails, how made, 6-1950-52

Steele, Richard, English writer
life and writings, 5-1620-22; 8-2865

Picture, portrait, in group, 5-1622

Steen, Jan, Dutch painter, 5-1594

Steer, Wilson, English painter, 8-2859

Steering, at sea
first use of astronomical observations,
1-283-84

first use of wheel, 11-3918

gyro-compass, 12-4422

how to read the mariner's compass, 16-5984

wireless compass, 17-6248

Steering of boats, 14-5002

Stefansson, Vilhjalmur, arctic explorer, 13-4722

Steffe, William, wrote music for John Brown's
Body, 18-6513

Stegomyia, carrier of yellow fever germ,
15-5488

Stein, Sir Mark Aurel, archæologist
discoveries in China, 2-424, 429; 3-1054

Steinheil, Carl, and electrical current, 17-6241

Picture, portrait, 17-6235

Steinmetz, Charles Proteus. Electrical engineer,
noted for scientific insight, practical inventions
and lucid writings. Born in Breslau, Germany,
1865; died, Schenectady, New York, 1923. Lived
and worked in the United States after 1889.

Steinway, Henry, made improvements in piano.
5-1796

Stela, Greek memorial stones, 12-4331

"Stella" (Esther Johnson)
Swift's love for, 5-1620

Stencils
directions for making, 3-1155

directions for painting, with picture, 1-336-37

Stephen, St., king of Hungary, 17-6194

Stephen, king of England, 5-1568

Stephen, Leslie, author, 11-4002

Stephenson, George, engine-builder, 5-1611-18

Pictures, portrait (in group), 5-1613

showing his engine, the Rocket, 19-7203

Stephenson, Robert, English engineer
bridge built by, 1-28

built engine, 5-1616

Picture, portrait, with father, 15-5619

Steppes, definition, 6-2171

vegetation of, 4-1281

Steps, concrete, how to make, 12-4499

Stereopticon, or magic lantern, directions for
making, 8-3018-22

Stereoscope, explanation, 3-878-79; 9-3100

Sterling, John, Carlyle's life of, 9-3312

Stern of a ship, 14-5003

Sterne, Laurence, English writer, 6-2256

Stethoscope, invention and purpose, 8-2724

Stettin. Important German Baltic port, and
capital of Pomerania, on the Oder. It has large
cement, sugar and shipbuilding trades.

Picture, Hansa bridge (engravure), 12-4177

**Steuben, Friedrich Wilhelm von, Baron (1730-
94).** German-American soldier, born in Made-
burg. He entered the Prussian army in 1747

GENERAL INDEX

- Stenben, Friedrich Wilhelm von, Baron** (*continued*)
and served for nearly twenty years. In 1773 he arrived in the United States, and was soon made inspector-general. He gave invaluable service in training troops and introducing system into the army, and also was an effective commander. Several states voted him tracts of land, and he spent the last years of his life near Utica, N. Y., where there is a monument in his memory.
note and portrait, 4-1161
- Stevens, Alfred**, English sculptor, 13-4854
- Stevenson, Adlai E.**, vice-president of U. S.
Picture, portrait (grave) 11-3948
- Stevenson, Elizabeth Cleghorn**, *see* Gaskell, Mrs.
- Stevenson, Robert Louis**
* life and writings, 8-2868-69
as a novelist, 11-3897
in Samoa, 9-3298
buried in Samoa, 8-2869; 9-3188
poetry of, 12-4231
- * **Treasure Island**, summary and quotations, 13-4645-53
visit to leper colony of Molokai, 7-2322
See also Poetry Index for poems and notes
Poem about. To Tusiata in Vailima, by Edmund Gosse, 10-3737
- Pictures*
portrait, 11-3899
portrait, with mother, 15-5618
memorial bas-relief, 11-3899
- Steward of Scotland, High**, (Robert), beginning of Stuart kings, 12-4210
- Stewart, Allan**, artist
Picture, Sir Galahad (grave) 19-6947
- Stick insects**, 17-6070
Pictures, 17-6071
- Stickerchief**, game, 11-3859
- Sticklebacks**, fishes, description, 15-5632
Pictures, 16-5779; (in color), 16-5784
- Sticks**
printing designs with, directions for, 1-129-30
splicing, directions for, 12-4374
telling stories by, 1-231
Questions about
Why does a stick float? 17-6178
Why does a stick make a noise when swung in the air? 12-4281
- Sticktight**, name for false forget-me-not, 18-6665
- Sticky balm**, shrub, 19-6936
Picture, 19-6935
- Stief**, dog, story of, 16-5738
- Stigma**, part of flower
Picture, 2-509
- Stilts**, how to make and use, 17-6263
- Stimulants**, not good for children, 7-2569
- Sting-bull**, fish. Picture, 16-5777
- Sting-rays**, or **Stingarees**, fishes, 16-5774
eat triggerfish, 19-6885, 6888
- Stinging nettle**, *see* Nettles
- Stings**
treatment for, 11-4082; 16-5891
- Stint**, bird, 11-4012
- Stitch bird**, 9-3138
- Stitchwort**, flower
Picture, lesser stitchwort (in color) 14-4990
- Stjernhjelm, Georg**, Swedish poet, 19-7014
- Stoat**, animal, 3-873
Picture, 3-869
- Stock Exchange**. Institutions in the larger cities of the world where bonds and stocks are bought and sold. They are markets where the members (brokers) buy and sell, for their customers, bonds and stocks instead of meat, potatoes, etc.
- Stock ticker**, picture and note, 17-6055
- Stockholm**, Sweden, 15-5304
Pictures, 15-5291, 5305-06
- Stocks**, flowers, description, 19-7170
Picture, great sea stock (in color) 14-4982
Picture (grave) 19-7179
- Stodart, M. A.**, *see* Poetry Index, for poem and note
- Stoddard, Richard Henry**, *see* Poetry Index, for poems and notes
- Stoicism**. The system or theory of an ancient school of philosophers in which calm fortitude is the desirable virtue to be sought in life with an indifference to pleasure or pain. Stoics sought to live according to nature. Zeno founded this school of thought about 308 B.C.
- Stoke Poges**, England
Pictures, churchyard of Gray's Elegy, 6-2029; 9-3337
- Stomach**, structure and work, 6-2083-84
- Stomata**, pores of leaf
in water-lily, 4-1278
uses of, 2-615-16
- Stone**, Marcus, artist
Picture, James Watt and steaming kettle, 5-1613
- Stone**
artificial, *see* Concrete
building-stones in U. S., 9-3210, 3212
use in making homes, 5-1657
See also Stones; Rocks
Question about. Which is the best stone for building? 8-2716
- Stone Age**, 1-192-96
among South American Indians, 19-6858
barley used in, 5-1852
See also Man, Prehistoric and primitive
Pictures, drawings of cave-men, 1-189-96
- Stone-clover**, 14-4974-76
Picture, 14-4975
- Stone Mountain memorial**, Georgia, 13-4518
- Stonechats**, birds
Picture (in color) 9-3132
- Stonecrop**, 14-4973
cultivated, 19-7171
note on, 14-4972
See also Sedums
Pictures, 14-4972
English stonecrop (in color), 14-4981
- Stonehenge**, England, 4-1317; 14-5208
- Stones**
Questions about
Could a stone be dropped through a hole through the earth? 15-5365
Is a stone alive? 17-6174
Where do the stones we see lying about come from? 7-2611
Why does coal burn, and not a stone? 17-6285
Why will a hammer break a piece of stone when a piece of wood will not? 10-3477
See also Geology; Rocks
- Stones, Precious**, *see* Precious stones
- "Stonewall Jackson"**, *see* Jackson, Thomas Lee
- Stoneworts**, submerged fresh-water plants, 4-1278
- Stony book of nature**, * 6-2069-75
- Stool**, how to make, 9-3117
- Stopper**, how to remove, 19-7079
- Storage**, Cold, *see* Cold storage
- Storage batteries**, 16-5675-78
Pictures, with explanation, 16-5668
- Stores**
* Wonder of a great store, 10-3673-82
buyers for, 10-3674
delivery system, 10-3676-79
employees, training of, 10-3680
factories of, 10-3674
hospital rooms, 10-3680
mail-order service, 10-3678
offices, 10-3682
research bureaus, 10-3674, 3676
* *Pictures*, 10-3675-82
- Stories**
Androcles and the lion, 12-4488-89
Arcadian boar, 9-3083
Babes in the wood, 7-2341
Baldour the beautiful, 14-4942
Ball in the hollow post, 5-1579
Baron rescues his horse, 4-1422
Battle with snakes, by Waterton, 4-1530
Battle with the giant, 9-3084
Big jar of water, 5-1579
Birds with the brazen wings, 9-3083-84
Box of good luck, 9-3351
Boy who found light, 5-1579
Boy who had no paper, 5-1579
Branding of Tommy, 9-3239
Capture of the sacred stag, 9-3083
Catching a thief, 17-6099
Cleansing the stable, 9-3083
Cobblers and the cuckoo, 9-3347
Conqueror's triumph, 8-2961
Cunning farmer and the dwarf, 13-4558
Dead boy who sang a hymn, 13-4773
Destruction of a ship by a whale, 4-1189
Dinner at the castle, 8-2962
Dinner at the inn, 9-3082
Discontented fir-tree, 15-5323
Discontented pendulum, 12-4198
Dog of the underworld, 9-3084

GENERAL INDEX

Stories (continued)

Earl's daughter and beggarman, 14-5196
 Emperor and his servant, 16-5826
 Emperor and the figs, 18-6481
 Emperor's new clothes, 3-851
 Emperor's nightingale, 7-2455
 Eyes front, 10-3715
 Fairy funeral, 11-3836
 First apple dumpling, 17-6095-97
 Four wise ministers, 18-6473
 Game of billiards, by Alphonse Daudet, 4-1528
 Geese who kept guard of Rome, 11-3982
 Girdle of the Amazon queen, 9-3084
 Gog and Magog, 14-5194
 Golden apples, 9-3084
 Goldilocks and the golden crown, 14-4941
 Great Fire of London (from Evelyn's Diary), 8-2819
 Heir and the will, 9-3082
 Hole in the wall, 5-1580
 How Gotham got a bad name, 6-2108
 How the French reached Moscow, 7-2599
 How the thief was found out, 18-6479
 Howleglass, the merry jester, 8-2962
 Husband who was to mind the house, 3-1099
 In the days when men were good, 7-2600
 King who could not sleep, 5-1577-78
 King's guest, 16-6029
 King's watchers, 18-6481
 Knight and the ugly old woman, 13-4772
 Last class, by Alphonse Daudet, 19-7220
 Last will of Charles Lounsbury, 5-1687
 Lawyer and the oyster, 18-6484
 Little Claus and Big Claus, 2-755
 Little Goody Twoshoes, 9-3077
 Little Lombard sentinel, 18-6482-84
 Little spinner at the window, 10-3711
 Love laughs at locksmiths, 7-2352
 Love that was worth nothing, 5-1578
 Luck of Simple Jack, 13-4756
 Mad bull of Crete, 9-3084
 Man-eating horses, 9-3084
 March of the Ten Thousand, 14-5257-58
 Men who went to kill Death, 13-4770
 Merciful knight, 9-2244
 Merry cobbler and his coat, 15-5532
 Mysterious portrait, 9-3080
 Nutteracker and the king of mice, by Hoffmann, 10-3600-04
 Old couple at the mill, 11-3829
 Old man named Scrooge, from Dickens' Christmas Carol, 17-6115
 Old woman and her pig, 15-5525-26
 Patience of Griselda, 13-4767
 Peasant and the three robbers, 10-3719
 Proud king of Kamera, 7-2352
 Rich man's diamond, 18-6480
 Romance of the Lady Emelye, 13-4771
 Rosy apple, 5-1580-81
 Sad heart of a little Trott, 14-4945
 School examination, by Selma Lagerlöf, 13-4753
 Search for the real princess, 2-756
 Slaying the lion, 9-3083
 Sleepy student, 5-1579
 Snake with a hundred heads, 9-3083
 Son who did his duty, 8-2961
 Stag with a cherry tree, 4-1423
 Story of a day, by Corot, 16-6034
 Story of the days, 12-4199
 Story of the willow-pattern plate, 4-1532
 Strange adventures of a princess, 13-4769
 Tale of Bob Singleton, by Daniel Defoe, 12-4486
 Tale of Christmas Eve, 17-6098
 Tale of many lands, 14-4942
 Three great questions, 8-2962
 Three little pigs, 1-145
 Three maid-servants, 7-2602
 Two friends, 8-2963
 Two guests at a feast, 8-2962
 Ugly duckling, 17-6096
 Uncama's adventure, 5-1582
 Web of cloth, 5-1579
 When did you last see your father? 13-4563
 Wisest maid in Wessex, 15-5441
 Wonderful horse, 8-2962
 Wonderful hunting dog, 4-1423
 World tour by eagle, 4-1424

Stories. Animal stories

Bear in the well, 18-6480
 Black Diamond, 15-5326-28

Stories. Animal stories (continued)

Brave little dog of the wood, 9-3079
 Cat and the parrot, 11-3837
 Dog that knew his master, 11-4139
 Dog that remembered Odysseus, 1-146
 Dogs that became friends, 8-2961
 Farmer and his dog, 8-2964
 Fox repaid in his own coin, 13-4768
 Gelert, the faithful dog, 5-1693
 Hundred thousand monkeys, 16-6032
 Hungry fox and the kitten, 7-2352
 Jackal and the lion, 5-1582-83
 Jackal's trick, 5-1583
 Kafir and the lion, 16-6033
 Lion and the crocodile, 4-1421
 Lord of the lions, 2-404
 Miller and his pets, 19-6997-98
 Reynard the fox, 8-2965-66
 Stickeen, 12-4195
 See also Fables
Stories. Fables, see Fables. For detailed list of Æsop's fables, look under Æsop
Stories. Fairy tales, see Fairy tales
Stories. Famous books: summaries, and quotations in most cases
 Æneid, Story of, 6-1986-89
 Alice in Wonderland, by Carroll, 3-1089-98; 4-1179-86, 1333-42
 Baron Munchausen, by Raspe and others, extracts and note, 4-1421
 Ben-Hur, by Wallace, 10-3745-52
 Blue Bird, by Maeterlinck, 14-5069-74
 Canterbury Tales, by Chaucer, 13-4767-73
 Christmas Carol, by Dickens, summary only, 17-6115-21
 Clockmaker; or, Sam Slick, by Haliburton, 10-3527-34
 Count of Monte Cristo, by Dumas, 18-6573-80
 David Copperfield, by Dickens, 8-2773-81
 Don Quixote, by Cervantes, 5-1629-38
 Gold-bug, by Edgar Allan Poe, 5-1899-1904
 Gulliver's Travels, by Swift, 3-947-56
 Iliad, story of, 6-1983-84
 Last of the Mohicans, by Cooper, 1-267-78
 Les Misérables, by Hugo, 11-3861-72
 Man without a Country, by Hale, 7-2401-08
 Masterman Ready, by Marryat, 18-6757-66
 Moby Dick, by Melville, 15-5401-08
 Nicholas Nickleby, by Dickens, scene from, 16-5683-89
 Odyssey, story of, 6-1984-86
 Peter Pan, by Barrie, 13-4659-64
 Pilgrim's Progress, by Bunyan, 15-5543-52
 Ramona, by Mrs. Jackson, 1-133-40
 Rip Van Winkle, by Irving, extracts, 12-4481-85; 13-4559-62
 Robinson Crusoe, by Defoe, 2-665-75
 Roughing it in the Bush, by Mrs. Moodie, 16-5901-05
 Round the World in Eighty Days, by Verne, 12-4235-44
 Scottish Chiefs, by Jane Porter, 12-4319-26
 Sentimental Tommy, by Barrie, extract only, 9-2239-44
 Tom Brown's Schooldays, by Hughes, 14-5149-55
 Treasure Island, by Stevenson, 13-4645-53
 Two Years before the Mast, by Dana, 9-3357-64
 Wacousta, by Richardson, 9-3141-49
 Waverley, by Scott, 11-4071-78
 Westward Ho! by Kingsley, 14-5027-34
Stories. Golden deeds
 Apprentice boy and his master's children, 5-1733
 Apronful of gunpowder (about Elizabeth Zane), 3-1037
 Arab patriot of Algeria, 4-1255
 Band of noble men, 4-1256
 Bear hunt, 14-5122
 Beloved physician, 1-229
 Black Robe and White Heart, 15-5375-77
 Bold hero of the mountains, 15-5378
 Boy on the burning deck, 19-6881
 Boy who saved his family, 3-1036
 Boy who saved the boat, 1-128
 Boy who took a man's place, 4-1256
 Boy who would not fight against freedom, 13-4581
 Brave apprentice, 1-123-24
 Brave cardinal of Milan, Italy, 10-2466
 Brave constable of France, 10-3468
 Brave Countess Joan of Brittany, 12-4226

GENERAL INDEX

Stories. Golden deeds (continued)

- Brave deed of a young American doctor, 13-4580
 Brave French maid of Nôyon, 11-3806
 Brave girl, 14-5121
 Brave Grizel Hume, 2-441
 Cher Ami, D. S. C., 7-2319
 Devotion of a king's daughter, 19-6881
 Devotion of a Roman, 11-3806
 Doctor of Burton Port, 6-2008
 Dogs who have done their bit, 16-5735-38
 Edith Cavell, 17-6396
 The Elsie to the rescue, 14-5120
 Friend of the slaves, 5-1732-33
 Friendship of Damon and Pythias, 9-3064
 Frugal hero of ancient Rome, 3-889
 Girl who held the fort (Madeline de Verchères), 11-4089
 Girl who saw the tsar, 3-890
 Girl who sold her hair, 4-1257
 Girl who walked to London, 12-4224
 Girl's desperate ride, 10-3465
 Greater love hath no man than this (about Father Damien), 7-2320
 Hero of Kavala, 17-6395-96
 Heroes of aviation, 17-6291-94
 Heroine of the Southern Seas, 2-446
 Heroism of Grace Darling, 3-1035
 How Alcestis gave her life, 8-2703
 How Grotius left the castle, 11-3805
 How Lady Godiva helped her people, 17-6295
 How Regulus went back to die, 1-124
 How the children saved the town, 9-3068
 John Maynard, pilot, 17-6137
 Kate Barlass of the broken arm, 13-4579
 Last fight at the Colosseum, 9-3064
 Lithuanian girl's quick wit, 11-3811
 Little Agnes of the snow, 19-6879
 Little girl trusted with state secrets, 1-126
 Maid of Saragossa, 14-5119
 Man who carried death, 17-6139
 Man who knew no fear, 13-4577-78
 Man who loved children, 1-127
 Man who loved the house, 2-443
 Man who saved his son (Labat), 3-1036
 Man who saved St. Heller, 11-4092
 Man who thought of his comrades, 17-6294
 Marie Antoinette's great sacrifice, 6-2009
 Men of the Birkenhead, 3-888
 Mother of the Gracchi, 11-3811
 Out of the depths of the earth, 9-3066
 Picture of a golden deed, 17-6140
 Poacher's silence, 17-6138
 Prince who gave up his freedom, 4-1257
 Queen who gave up her boy, 13-4581
 Race for the lifeboat, 5-1731
 Race from Marathon, 3-887
 Race with the wolves, 9-3067
 Sacrifice of a king's sister, 6-2008
 Sacrifice of Iphigenia, 11-3808
 Servant who tried to save his mistress, 3-1036
 Soul of the Countess Cathleen, 15-5379-80
 Swiss guards who did their duty, 3-888
 Tale of a slave, 19-6880
 Tallow dip and the black salt, 8-2708
 Three cups of cold water, 6-2007
 Two poet-soldiers, 17-6393
 Undying love of a sister, 9-3068
 Village of heroes, 9-3063
 When the white ship went down, 12-4223
 A woman against a king, 12-4225
 Woman who clothed the poor, 1-124
 Wonderful story of the Venerable Bede, 1-126
- Stories. Myths and legends, see Myths and legends**
- Stories about King Arthur, see Arthur, King**
- Stories about people**
 Alexander and the pirate (about Alexander the Great), 8-2961
 Antonio's wonderful lion (about Canova), 5-1689-90
 Battle with the lion (about Alexander the Great), 8-2964
 Bird that Napoleon set free, 14-5124
 Boy whom France forgot (son of Napoleon), 1-150-51
 Clever bad man (about Vidocq), 18-6476-79
 Conqueror and the artist (about Alexander the Great), 8-2963
 Daughter of Sir Thomas More, 14-5124-25
 Dick Whittington and his cat, 2-758
 Friend of the slaves (Vincent de Paul), 5-1732

Stories about people (continued)

- How Alexander crossed the river (about Alexander the Great), 8-2964
 How Blondel sang to find the king (about Richard the Lion-hearted), 16-5827
 How the bad news reached the king (about Frederick the Great), 13-4751
 Jack Miner, the man who loves birds, 8-2813-18
 King, the nobleman, and the peasant (about Louis XII), 3-857
 King who was loved (about Croesus and Cyrus), 8-2963
 King's three questions (about Frederick the Great), 16-5830
 Little princes in the tower (about sons of Edward IV), 1-147
 Lonely shepherd boy (about Denys Peuch), 16-6031
 Man of great importance (about George Washington), 5-1691
 Marjorie Fleming, 10-3717
 Master and his scholars (about Dionysius), 8-2963
 Mother Shipton, 7-2602
 Peasant girl and empress (about St. Helena), 5-1691
 Sir Walter Scott and some of his pets, 14-5265
 Soldier and his judge (about King Philip), 8-2964
 Thief who turned policeman (about Vidocq), 18-6791-92
 Traitor who became loyal (about King Philip), 8-2963
 William Tell, 19-7217-19
 Wonderful friends (David and Jonathan), 19-7001-03
See also Saints; Stories, Golden deeds
- Stories about proverbs**
 Bag of peas, 16-6036
 Farmer and his sacks, 16-6036
 Two kings, 16-6036
- Stories in French, see French language—stories**
- Stories in poems**
 For list of poems that tell stories, *see* headings Myths and legends, and Story poems, 20-7682
- Storkbill, flower**
Picture (in color), 14-4981
- Storks, birds, 11-4008**
Pictures, 11-4004
 saddle-billed stork (in color), 12-4371
 young white stork, 8-2761
- Storm. A disturbance of the normal condition of the atmosphere, resulting in winds, rain, snow or hail.**
See also Physical Geography, 20-7615-16
- Stormy petrels, see Petrels—stormy**
- Storthing. The Norwegian parliament.**
- Story, William W., American sculptor, 14-4934**
Picture, statue, Medea, 14-4935
- Story in a teacup, * 2-761-72**
- Story-telling**
 story hours in libraries, 15-5628
 with sticks, 1-231
- Stoss, Veit, German woodcarver, 13-4699**
- Stourbridge Lion, early locomotive, 5-1618**
- Stowe, Mrs. Harriet Beecher. Life, 13-4720**
 Uncle Tom's Cabin, influence of, 7-2429
Picture, portrait, 13-4730
- Strabo, Greek geographer**
 description of France, 11-3813
- Stradivari, Antonio, violin-maker, 18-6700**
- Strafford, Thomas Wentworth. Earl of**
 support of Charles I, 11-3849-50
Picture and note, going to execution, 11-3844
- Straight-claws, birds, 9-3285**
- Strains, treatment for, 11-4082**
- Straits Settlements. British possession, 9-3184**
- Strandberg, Karl Wilhelm August, see Poetry**
 Index for poem and note
- Strang, William, British painter, 8-2859**
- Stravinsky, Giovanni Francesco, writings of, 9-2193**
- Strasbourg, Alsace-Lorraine**
 cathedral, 17-6160
Picture and note, 10-3438
 cathedral (graveure), 17-6166
- Strata, of earth, 17-6385**
 how made, 2-631-34
See also Geology
Pictures, 2-631; 6-2072

GENERAL INDEX

- Strategy.** Skill and good generalship in using different branches of a military force in a war manoeuvre.
- Stratford-on-Avon, England**
Picture, Ann Hathaway's cottage, 2-726
Picture (gravure), 7-2301
- Strathcona II**, hospital ship, 7-2498
Picture, with note, 7-2494
- Stratus clouds**, description, 8-2923
Pictures, 8-2926-28
- Straus, Oscar S.**, American diplomat
 note and *picture*, 19-7165
- Strauss, Richard**, German musical composer, 19-6926, 7152
- Stravinsky, Igor**, Russian musical composer, 19-7153
- Straw**
 Indian doll, how to make from, 18-6645
Questions about
 Why did the Egyptians use straw for their bricks? 12-4505
 Why is straw sometimes hung under bridges? 10-3477
- Strawberries**
 Improvement in varieties, 15-5381
Pictures, 6-2063
 wild fruit (in color), 11-4024
 wood strawberry, flower (in color), 14-4938
- Strawberry tree**, 11-4019
Picture, fruit (in color), 11-4021
- Streams**, how to measure, 19-7084
See also Rivers
Questions about
 Why does the stream run faster in the middle? 12-4399
 Why is a running stream purer than a stagnant pool? 14-5084
- Stretchers**, how to make, 12-4267
- Strindberg, Johan August**, Swedish novelist, 19-7014
- String bag**, directions for making, 6-2163-64
- Stringed instruments**, *see* Musical instruments
- Stringer, Arthur**, author, 15-5370
Picture, portrait, 15-5370
- Striped snakes**, *see* Garter snakes
- Stromboli**, Island and volcano in the Lipari Islands, Italy. The island covers five square miles; the volcano is constantly active.
Picture, 6-2176
- Strongbow, Richard**, Richard de Clare, and Ireland, 8-2932
- Strozzi Palace**, Florence, 17-6298
Picture (gravure), 17-6306
- Studwick, J. M.**, British painter
Picture, *Three Fates* (gravure), 9-3229
- Strychnine**, obtained from nux vomica tree, 8-2942
- Stuart, Charles Edward**, the Young Pretender
 Jacobite rising, 6-2098
 * life of, 15-5639-44
 note on, 15-5638
 * story about, Waverley, quotations and summary, 11-4071-78
Picture, portrait, in group, 15-5638
- Stuart, Charlotte**, daughter of Prince Charlie, 15-5644
- Stuart, Gilbert**, American painter, 9-3327-28
Pictures
 George Washington, 9-3327
 Portrait of Dr. Fothergill, 9-3329
 Portrait of Mrs. James Greenleaf, 9-3329
- Stuart, Henry Benedict**, son of the Old Pretender, 15-5640, 5644
- Stuart, James Francis**, the Old Pretender, 6-1981, 2098; 15-5639
- Stuart, John McDouall**, Australian explorer, 3-863
Picture, portrait, 3-863
- Stuart, Mary**, *see* Mary Queen of Scots
- Stuart, Muriel**, *see* Poetry Index for poem and note
- Struggle for the Continent**, * 3-777-84
- Stubbs, William**, historian, 9-3295
Picture, portrait, 9-3291
- Sturdee, Sir Frederick Charles Doveton**, English admiral of the fleet, victor of the Falkland Isles engagement in 1914. Born, 1859.
- Sturgeon, William**, and the electromagnet, 4-1252
- Sturgeons**, fishes, 15-5630
- Sturla, Thorodsson**, Scandinavian writer, 19-7010
- Sturlason, Snorri**, *see* Snorri Sturlason
- Sturt, Charles**, Australian explorer, 3-863
Picture, portrait, 3-863
- Stuttgart**, Capital of Württemberg, Germany, with textile, pianoforte, beer and chemical industries.
Picture (gravure), 12-4178
- Stuyvesant, Peter**, Dutch governor of New Amsterdam and Delaware, 2-552
 surrender to English, 2-552
Picture, portrait, 2-549
- Styka, Jan**, Polish painter, 8-2852
Picture, Tolstoi, 8-2852
- Styrax**, or Benjamin tree, produces benzoin, 9-3152
- Styrol**, in benzoin, 9-3152
- Styx River**, 9-3238
- Suaviter in modo, fortiter in re**, Latin for "gentle in manner, strong in action."
- Sub judice**, Latin for "under consideration."
- Submarine boats**
 * account of, 1-197-98
 F4, U. S. Navy, sinking and raising of, 12-4186
 Robert Fulton's invention of, 17-6401
 toy, directions for making, 10-3503-04
Pictures, 1-197-200; 18-6823
 going through Panama Canal, 1-365
- Submarine cable**, *see* Cables, Submarine
- Submarine-chasers**, 18-6816
- Submarine mine**, An explosive device anchored below the water-line and designed to destroy or injure a ship by blowing a hole in her hull.
- Subpœna**, An order or writ demanding the presence in a court of justice of the person on whom it is served. Failure to obey a subpœna renders a person liable to a penalty.
- Subsidy**, Assistance or aid in the form of a sum of money.
- Subtraction**, The taking-away of one part from another; the taking of a part from the whole; or finding the difference between a smaller number and a greater.
- Subways**
 electric engines replaced steam, 16-5805
 how constructed in New York, 7-2397
- Sucker, Leather**, how to make, 3-902
- Sucker Family**, fishes, 15-5634
- Suckling, Sir John**, *see* Poetry Index for poem and note
- Sucrose**, name for common sugar, 10-3416
- Sudan**, Vast Anglo-Egyptian territory in north-east Africa; area, 1,014,400 square miles; capital, Khartoum. Though it contains the Nubian and much of the Libyan Desert, it has much fertile land in the Nile valley, and the cultivated area is being greatly increased by irrigation. Cotton-growing especially is making great progress, while cattle-raising and the cultivation of millet are important. Exports include the world's chief supplies of gum arabic and ivory, with sesame, senna, ground-nuts, dates, hides, gold and cattle. Omdurman, El Obeid, and Kassala are important towns; Suakin and Port Sudan are ports. The name Sudan is used also for a large French West African district, lying south of the Sahara. extent of, 9-3054, 3056
 Marchand, and French possession of, 11-3824
- Sudd**
Question about. What is the sudd on the Nile? 8-3016
- Suez Canal**, 13-4786
Pictures, 13-4784, 4791
- Suffrage**, *see* Voting
- Sugar**
 * Where sugar comes from, 10-3415-20
 as a food, 6-2187
 brown sugar tastes sweeter than white, 11-3957-58
 chemical elements of, 10-3416
 countries producing, 10-3418
 use and production in U. S., 8-2680
 West Indies, losses, 19-7192
 digestion of, 6-2085
 fermentation due to yeast, 18-6662
 from maple tree, *see* Maple trees—sugar-maple
 history, early use, 10-3415
 of the ancients, 17-6221
 plants producing, 7-2531-32
 sources of, 10-3420
Questions about
 Why do we say that sugar is sweet? 1-310
 Why does sugar dissolve more quickly in hot water than in cold? 17-6176

GENERAL INDEX

Sugar (continued)

Pictures

American Sugar Refinery, New Orleans, 14-4891

* cultivation and manufacture, 10-3415

Hawaiian plantation, 15-5451

how the sugar grows, 7-2533

Sugar-beets, see Beets and beet-sugar

Sugar-cane, account of, 7-2531

cultivation and manufacture into sugar, 10-3416, 3418

Pictures

growing in Mexico, 7-2533

manufacture into sugar, 10-3422-23

planting and cutting, 10-3417

Sugar maple, see Maple

Sugar scoop, how to make, 2-747

Suggestion and hypnotism, 12-4443-44

Suicides and alcohol, 8-2684

Suleiman II, sultan of Turkey, 13-4800

Sulla, Lucius Cornelius, Roman general, 4-1365-66

Sullivan, Alan, Canadian poet, 14-5108

Sullivan, Sir Arthur, English musical composer life, 19-6925

wrote music for *The Lost Chord*, 10-3611

Picture, portrait, 19-6912

Sullivan, Louis, American architect, 18-6684

Sully, Duc de (Maximilian de Béthune)

adviser of Henry IV, 10-3436

Sully, Thomas, American painter, 9-3330

Pictures

portrait of Major Thomas Biddle, 9-3324

portrait of Rebecca Gratz, 19-7164

Sully's Hill National Park, 7-2291

Sulphates. In chemistry, salts of sulphuric acids. Gypsum is a calcium sulphate; barytes is a barium sulphate; Epsom salts is a magnesium sulphate, etc. Sulphates are widely distributed in nature.

Sulphid of calcium in luminous paint, 8-3016

Sulphite pulp, for making paper, 7-2443

Sulphur (S). An element found pure in beds of gypsum and in volcanic regions as a rule. It is soft, yellow and resinous in appearance. It burns with a blue flame and gives off the well-known sulphur odor. In combination sulphur is found as copper pyrites, iron pyrites, etc. Sulphur is used for making matches, fireworks, gunpowder, medicines, insecticide and for many other purposes.

obtained in Sicily, 13-4572

production in Louisiana and Texas, 13-4526

tarnishes silver, 10-3477

Sulphur flower, description, 18-6658

Picture, 18-6654

Sulphuric ether, see Ether. Sulphuric

Sulphurwort, plant, 16-5880

note on, 16-5875

Picture, 16-5875

Sultan. A Mohammedan sovereign. The ruler of Turkey, before the recent upheaval, was called the Sultan of Sultans.

Sulte, Benjamin, French Canadian author, 15-5367

Sumac, account of, 13-4640, 4780-82

poisonous and harmless, 13-4780, 4782

Pictures, 13-4781

fruit, 13-4635

Picture (in color), 8-2997

Sumac, Venetian, produces dye, 9-3154

Sumatra, 15-5568

Sumbawa, volcano, eruption of, 7-2314

Sumerians, ancient people in Mesopotamia, 2-650

probably of Mongol origin, 18-6670

writing, 10-3546; 18-6670

Summer

* how caused, 1-238-39

why days are longer than in winter, 8-2792

Poem about. A Summer's Day, by Alexander

Hume, 10-3644

Summerhouse, how to make, 13-4849-50

Sumner, Charles (1811-74). An American statesman and anti-slavery leader; U. S. Senator for many years; assaulted in Senate Chamber by Preston Brooks in 1856, receiving injuries which incapacitated him for nearly four years.

Sumter, Thomas, in American Revolution, 4-1170

Sun

* Sun and its power, 9-3171-80

* How sun and wind made the hills, 2-629-34 and earth's motion, 1-236, 238

and measurement of time, 14-5217

Sun (continued)

distance from earth, measured by time, 9-3033

earth revolves around, chart and explanation, 1-18-19

eclipse, see Eclipses

energy given to the earth, 8-2664

heat not due to burning, 14-5225

how causes the seasons, 8-2791-94

influence on tides, 2-583-84

light of, exerts pressure, 10-3665

parts of surface move independently, 9-3176

prominences of, 9-3178

red appearance through fog explained, 8-2924

spectrum

composition of, 11-3922-23

with colored illustrations, facing 11-3920-21

speed of, 11-3786

sun-spots, see Sun-spots

telling time by, 6-2261

temperature, 9-3172

Poems about

The Sun, by Thomas Miller, 16-5923

Sun was Falling off to Sleep, by Harold

Begbie, 8-3007

Questions about

Does the sun ever cross the northern sky? 14-5222, 5224

Does the sun move or does it stand still? 1-312

How does the sun make a rainbow? 13-4828

Is there any water in the sun? 6-2122

What are sun-spots? 18-6694

What are three important things the sun gives the earth? 6-2123

What is the sun made of? 4-1231

Where does the oxygen in the sun come from? 14-5225

Why do we see a black spot in the sky, after looking at the sun? 14-4950

Why does the air not stop the light of the sun? 15-5620

Why does the sun fade carpets and not flowers? 4-1354

Why is the world light when the sun is behind clouds? 16-5744

Will the sun ever be as cold as the earth? 14-5220

Pictures

corona (in color), with note, facing 9-3180

eclipses, 9-3170, 3172-73

flames on edge, 9-3173

flames on surface (in color), showing size compared with earth, facing 9-3170

showing patches of brightness, 9-3174

size, compared with Betelgeuse and earth, 11-3921

spots, 9-3171, 3177

sun and its neighbors, 9-3179

Sun-baths, benefit sick people, 4-1415

Sun birds, 9-3138

Picture, African sun bird (in color), 12-4370

Sun-spots, account of, 9-3173-74, 3176

affected by earth, 9-3176

Question about. What are sun-spots? 18-6694

Pictures

as seen through a telescope, 9-3177

showing revolution of sun, 9-3171

Sunday, how named, 12-4199-4200

in American colonies, 3-974-75

Sundew, plant, 2-746

description, 16-5727-28; 19-6932, 6934

insects as food for, 1-330

Pictures, 2-742; 16-5726

great sundew (in color), 16-5831

Sundial, account of, 6-2261

Sunfish

deep-sea, description, 16-5900

fresh-water, 15-5630-31

Pictures

deep-sea (in color), 16-5784

fresh-water sunfish, 15-5631

Sunflowers, description, 18-6660

Pictures, 18-6667

Pictures (gravure), 19-7179

double sunflower, 19-7180

Suns, see Sun; Stars

Sunset

Question about. What makes the colors of the sunset? 18-6552

Sunstroke, treatment for, 16-5981

Super-power plan, for water power, 11-3774

Superior, Lake, size, 7-2484

Picture, boom of logs, 7-2447

GENERAL INDEX

- Superstitions** about animals, 1-353, 355, 359
Supply, economic term, definition, 16-5935
Supply and demand
 and distribution of wealth, 17-6093-94
 law of, in economics, 16-5934-36
Suprarenal glands, 9-3223
Supreme Court of U. S., 5-1792
 note on, 20-7571
Surajah Dowlah, Hindu ruler
 and Black Hole of Calcutta, 8-2826
 killed at battle of Plassey, 8-2826
Surf-riding, note and picture, 9-3301
Surgeon fish
Pictures (in color), 16-5787
 Achilles surgeon fish, 16-5787
Surgeon's Daughter, by Scott, note on, 11-4071
Surgey, how different from medicine, 8-2722
See also Medicine
Surinam, *see* Guiana, Dutch
Surmullet, fish. *Picture* (in color) 16-5782
Surrey, Earl of, and early English verse, 1-321;
 3-1118
Surveying, use of trigonometry in, 16-5742
See also Measuring
Picture, Forest officers running a base line,
 8-2811
Susa, ancient Persian city
 architecture, 14-5209-10
 decorations of Darius' palace, 1-297; 11-3876
Pictures, friezes from Darius' palace, 1-292, 297
Suslik, animal, 3-1128
 how killed in Russia, 3-1132
Picture, 3-1129
Suspension bridges, 1-28-29
Sutter's Fort, California, note and picture,
 6-1923
Suttee, burning of widows, 8-2700
Suva, capital of Fiji Islands, 9-3188
Suzor-Coté, Aurèle de Foy, Canadian painter and
 sculptor, 14-5078
Picture, Old Pioneer (statue) 14-5078
Sverdrup, Harald, and polar drift, 13-4722
Sverdrup, Otto Neumann, captain of the Fram,
 13-4715-16
Pictures, portrait, 8-2977
 on deck of Fram, 13-4709
Sverre, king of Norway, 15-5294
Swallow-wort, name for celandine, 17-6280
Swallowing, process of, 4-1328
Swallows, birds
 account of, 9-3280, 3285; 14-5146
 of North America, 13-4835-36
 chimney, 9-3280, 3285
 destruction of, in Europe, 9-3278
Poem about, O Swallow, Swallow, Flying
 South, by Tennyson, 1-326
Pictures
 nests, 9-3279; 13-4765
Pictures (in color) 8-2897
 bank swallow, 9-3129
 barn swallow, 13-4842
 cliff swallow, 10-3623
 violet green swallow, facing 14-5133
Swammerdam, Jan, discoveries with microscope,
 13-4670
Swamp elder, *see* Elder, Swamp
Swamps, cypress, description, 12-4250
Picture, cypress swamp, 12-4250
Swan, John, English sculptor, 13-4856
Swan, Sir Joseph Wilson
 experiments on electric lights, 3-994; 16-5938
Picture, portrait, 4-1243
Swan of Avon. Name given to William Shake-
 speare by Ben Jonson.
Swan song. Last production of a poet; so
 called because dying swans were supposed to
 sing.
Swans, birds
 account of, 11-3885
Pictures, 8-2817; 11-3881, 3886-87
 mute swan (in color) 8-2897
Swaziland, Africa, 9-2052
Sweat-glands, structure and work, 4-1418-19
 affected by certain drugs, 4-1419
 in dog, 4-1419
Picture, 4-1417
Sweden
 compared with Norway, 15-5298
 * description, 15-5304
 Gota Canal, note and picture, 13-4787
 history, 15-5291-92, 5294
 colony in America in 1638, 2-552
 literature, 19-7014
Sweden (continued)
 map, 15-5301
 song, Our Swedish Feelings for Our King, by
 Strandberg, 17-6253
 water power, 15-5430
Pictures, 15-5302, 5305-06
Swedenborg, Emanuel, scientist and author
Picture, portrait, 19-7009
Swedish literature, 19-7014
Sweet-after-death, plant, description, 19-6932
Sweet briar, 11-4019
Pictures (in color)
 flower, 14-4995
 fruit, 11-4021
Sweet cicely, flower
Picture (in color) 15-5610
Sweet gale, bog-myrtle, note and picture,
 16-5733
Sweet-gum or liquidambar tree
 description, 12-4510, 4513
Picture, 12-4513
Sweet marjoram, 14-4976-78
Picture, 14-4977
Sweet peas, flowers, description, 19-7169
 from garden peas, 7-2613
Picture, flower (graveure) 19-7175
Sweet pepper, *see* Clethra
Sweet potatoes, *see* Potatoes, Sweet
Sweet-William, flower, 19-7170
Sweet woodruff, *see* Woodruff
Sweetbread, *see* Pancreas
Sweetbriar, *see* Sweet briar
Swallowfish. *Pictures* (in color) 16-5786-88
Swegn, king of Denmark, 15-5292
Swift, Jonathan, English writer
 life and writings, 5-1619-20
 * Gulliver's Travels: criticism, summary of
 parts, and quotations, 3-947-56
Picture, Swift and Stella, 5-1619
Swift runners, * 4-1441-48
Swifts, birds
 account of, 9-3371-72; 13-4836
 American chimney swallow, 9-3285
Pictures, 9-3365
 nest and eggs, 8-2757
Picture (in color) 9-3284
Swimming
 * directions for, 19-6955-58
 cautions about, 7-2513
 crawl, how to do, with picture, 19-6958
 free pools, N. Y. city, 15-5624
 tests of Camp Fire Girls, 14-5066
 tricks to practice, 8-3024
Question about. How can a duckling swim
 without being taught? 15-5518
Swinburne, Algernon Charles, English poet,
 12-4225-30
See also Poetry Index for poems and notes
Swine, *see* Pigs
Swiss Guards in French Revolution, 3-888;
 6-2132; 10-3568
Swiss painting, *see* Painting, Swiss
Swithun, or Swithin, St. Wessex monk who
 was Bishop of Winchester, and had great in-
 fluence over church and state matters of the
 time. His remains were moved into Winchester
 Cathedral in 971, and miracles are said to have
 been performed at his shrine. There are va-
 rious theories of the origin of the myth about
 the weather.
Switzerland
 cities, 16-6006-07
 * description, 16-5997-6000, 6006-08
 * description, a family tour, 17-6083-89
 flag, 16-6008
 forestry, conservation of forests, 8-2804
 glaciers, 7-2316
 government, 16-6008
 * history, 16-6000-06
 industries, 16-6006, 6008
 lake-dwellings, 16-6000
 languages, 16-6002
 map, 16-5998
 national hymn, 17-6255
 Protestant Reformation in, 16-6004, 6006
 rivers, 16-6000
 water power, 15-5430
 * *Pictures*, 16-5997-6010; 17-6083-89
 viaduct near St. Gall, 1-37
 picture map, 17-6084
Sword. One of the first weapons of defense
 made by man. An edged metal blade fixed in a
 grip or hilt, with some sort of protection for

GENERAL INDEX



Sword (continued)

the hand, was the first general pattern of sword. The blade was protected by a covering called a scabbard. Different forms grew out of the original type, and sabres, claymores, rapiers, scimitars, etc., were developed by different nations. In these days of firearms the sword has lost its importance as part of a soldier's equipment.

toy sword, how to make, 15-5339

Swordfish, 16-5896, 5898

Sycamore maple, *see* Maple trees—sycamore

Sycamore trees

called buttonwood, 13-4638

other trees called sycamores, 11-4100

Picture, 13-4643

Sydenham, Lord (Poulett Thomson), governor-general of Canada, 4-1484

Sydney. Largest city and seaport of Australia, capital of New South Wales. The great Pacific shipping centre of the Commonwealth, it stands on the natural harbor of Port Jackson, one of the finest in the world; it is well laid out, and has two cathedrals and a university, and a number of public parks. There are clothing, leather, pottery, glass, furniture, tobacco and engineering industries. Famous for its splendid climate, Sydney is the oldest Australian city, having been founded in 1788.

description, 7-2464, 2468

Picture, 7-2463

Sydney. Centre of the coal, iron and steel industries of Cape Breton Island, Nova Scotia. It has a fine harbor and an active shipbuilding trade.

Symbol. A sign or mark representing an object, animate or inanimate, that typifies an idea or a quality. The lamb is the symbol of power; the olive-branch of peace, etc.

Symbolism

in ancient Cretan painting, 2-448

See also Christian art and symbolism

Symington, William, built steamboats, 17-6399-6400

Picture, portrait, 17-6397

Symmer, Robert, discoveries in electricity, 4-1250; 16-5666, 5670

Symmonds, William, Murdock's apprentice, 3-992

Symonds, John Addington, *see* Poetry Index for poems and notes

Symons, Arthur, *see* Poetry Index for poem and note

Sympathy, mental influence of, 12-4443

Symphony, form of musical composition

Beethoven's symphonies, 19-7074, 7076

characteristics and Haydn's use of, 19-7073

Synagogue. A congregation of Jews meeting for religious instruction and worship; also the building in which such a congregation holds public worship.

Syndicate. A group of persons or corporations—financiers, capitalists or others—who form an association with the object of carrying out or promoting some enterprise financial or industrial, such as underwriting an issue of bonds. The various members may be bound together in whatever legal relation they may agree upon, as, for instance, a partnership.

Syntax. In grammar the arrangement of words in sentences in their proper relation to each other according to established usage or rule.

Syracuse. Once the most important Greek city in Sicily, Syracuse is now a decayed seaport with narrow, dirty streets. It has a cathedral, once the ancient temple of Minerva, and many interesting ancient remains.

Syria. French mandatory state in western Asia; area, 60,000 square miles. It was an ancient centre of civilization. It is now mainly an agricultural country. Beirut, Alexandretta, Tripoli and Latakia are the chief ports, and Aleppo, Damascus, Homs and Hamah the chief inland towns.

rare stamps, 16-5888

under the League of Nations, 18-6678

Picture, silk-making at Antioch, 15-5315

Syringa, plant, note and *picture*, 16-5720

Syrinx, a nymph changed into reeds, 9-3236

Syrin, J., German woodcarver, 13-4699

Syrup, *see* Sugar

Szechwan, province of China, 2-436

Taal. Dutch dialect spoken in parts of South Africa.

Tabard Inn. At Southwark, England, the starting-place of the Canterbury Tales pilgrims.

Tabb, John Banister, American author, 13-4815

See also Poetry Index for poems and notes

Tabitha, Christian disciple, story of, 1-124

Picture, 1-124

Table Mt. Flat-topped mountain rising above Cape Town, South Africa, 3,580 feet.

Tablecloth, directions for making, 14-5118

directions for making tea cloth, 6-2046

how pattern is made in the cloth, 9-3323

stenciled, 1-337

with appliqué work, 16-5891-92

Picture. Linen table-cloth, 9-3323

Tables, directions for making

from cheese-box, 14-5006

toy, 5-1765-66

Taboga, island, note and *picture*, 10-3595

Taboo. Polynesian word implying things, persons, etc. that must be avoided; hence in English anything forbidden may be called taboo.

Tabriz. Trade centre of northwest Persia, exporting raisins, cotton and carpets.

Tacitus, Cornelius, Roman historian, 16-5913

account of Tiberius, 5-1860

Picture, portrait, 16-5907

Tacking, in sailing

discovered by Greeks, 11-3914

explanation, 2-455-56

Picture, diagram, 2-456

Tacna and Arica, plebiscite as to nationality, 19-7038

Tacoma. City in the state of Washington, the centre of a rich mining, lumbering and agricultural district and an important railway centre and port.

Taddeo, Bartoli, *see* Bartolo

Tadoussac, Canada, first trading-post in 1599, 2-679

Tadpoles, account of, 15-5453-54

development, 1-256, 258

Question about. Where does the tadpole's tail go? 1-74

Taft, Lorado, American sculptor, 14-4940; 19-7124

Picture, statue of Chief Black Hawk, 15-5281

Taft, William Howard, president of U. S.

administration, 8-2672; 11-3949

appointed Chief Justice of the Supreme Court, 8-2672

life, outline of, 11-3954

Picture, portrait (gravure), 11-3947

Tag, game, 3-1093

Tagalos, or Tagalogs. A race who dwell in the Philippine Islands of Luzon, Mindoro, Lubang and Marinduque. They are of Malayan origin.

Tagore, Sir Rabindranath, Hindu poet, 15-5461

Tagus. River of Spain and Portugal, rising in eastern Spain and flowing into the Atlantic. It passes Aranjuez, Toledo, Talavera and Alcantara in Spain, and Abrantes, Santarem and Lisbon in Portugal. 565 miles.

Tahiti, first missionaries, 9-3304

Picture, native women, 9-3297

Tahoe, Lake. Largest lake in the Sierra Nevada Mountains. On the boundary between Nevada and California. It is about 22 miles long and 10 miles wide.

Tahr, animal. *Picture*, 4-1373

Tai. People of Southern Mongol stock who dwell in Indo-China. They are known as Shans by the Burmese, and Laos by the Siamese. They are very numerous in southern China. They may have Caucasian blood in their veins.

Tallefer, Norman minstrel, 5-1565

Picture (in group), 4-1439

Tailors

Question about. Why does a tailor wear a thimble without a top? 16-5962

Taipung Rebellion, China, 2-432-33

Taj Mahal. India, description, 15-5471-72

built as memorial, 8-2700

Pictures, 8-2701; (gravure), 8-2835; 15-5477

Takin, animal. *Picture*, 4-1374

GENERAL INDEX

- Talavera, Battle of.** Fought by Wellington with 19,000 British and 30,000 Spaniards against the French in 1809. After varying fortunes Wellington made a strong counter-attack, and the French retired to Madrid. The French lost 7,000 men, but the allies lost heavily and were unable to pursue.
- Talbot, William Henry Fox,** inventor, 18-6593
- Talc, or steatite.** A greenish white mineral with a pearly lustre and so soft that it can be scratched with the finger nail. It is used as a lubricant, as a basis for cosmetic powders and as "French chalk" to remove grease from silk and cloth. Talc is common to many districts throughout North America.
- Tale of Reynard the Fox,** note and excerpt, 18-6561
- Talent.** An ancient measure of weight; then a particular weight of gold; eventually a sum of money. The value of a Syrian talent would be from \$1,700 to \$2,000 of our money; the value of a Roman great talent would be about \$480.
- Talisman, The,** by Scott, note on, 11-4070
- Talking**
deaf-and-dumb communication, 18-6523
See also Speech
Question about. How did men learn to talk? 15-5515-16
- Talking machines**
* account of, 1-261-65
invented by Edison, 17-6136
inventions, recent, 1-263
records, how made, 1-261-62
preservation for future, 1-263-64
Question about. Why does a trumpet make the phonograph louder? 14-5224
- * Pictures, 1-260-265
- Tallahassee.** Capital of Florida, finely situated on a hill in the neighborhood of lakes. Principal manufactures are cottonseed oil, lumber, naval stores and cigars. In the neighborhood cotton, tobacco and sugar-cane are raised.
- Talleyrand-Périgord, Charles Maurice de** (1754-1838). French diplomatist and statesman under Napoleon and in the period following.
- Tallis, Thomas,** English musical composer, 19-6913-14
Picture, portrait, with William Byrd, 19-6915
- Tallow.** The solid oil or fat obtained for the most part from cattle and sheep. When pure it is white, but as sold commercially it usually has a yellow tinge. The best quality is used to make candles; inferior qualities are used for greasing machinery, making soap, etc. From certain trees and seeds a kind of vegetable tallow is obtained.
- Talmud,** stories from, 9-2482; 18-6486-81
- Talon, Jean Baptiste** (1625-91). A French official, intendant of justice, police and finance in New France from 1663 to 1668 and from 1670 to 1672. He built ships, started trade with the West Indies, sent out exploring parties and did many other things for the good of the colony. His report to the king of France, written in 1667, is a valuable historical document.
- Tamarack trees,** American larches, 11-4104
used as food, 12-4278
- Tamaracos,** buffaloes of Philippines, 4-1264
- Tamarisks,** shrubs, 14-5158-59
Picture, 14-5159
Picture, common tamarisk flower (in color) 14-4981
- Tamarugal, Desert of**
products coming from, 7-2421
- Tamerlane,** Tartar leader
invaded Persia, 3-918
- Taming of the Shrew,** play by Shakespeare
Picture, 3-588
- Tampico.** Most important oil port of Mexico, near the mouth of the Panuco river.
- Tanagers, birds**
account of, 8-2972
of North America, 14-5024, 5143-44
scarlet, 13-4825
Pictures, 8-2969
feeding young, 8-2975
Pictures (in color)
black-lored red tanager, 12-4369
Paradise tanager, 12-4372
red-necked tanager, 10-3621
scarlet tanager, 10-3623
western tanager, facing 14-5133
- Tanga, Tanganyika,** 9-3054
- Tanganyika, Lake.** Second largest African lake, on the borders of Tanganyika Territory, northern Rhodesia, and the Belgian Congo. 12,700 square miles in extent, it is the longest lake in the world, measuring 400 miles; from 30 to 45 miles broad, it is over 1,000 feet deep. Burton and Speke discovered it in 1858.
- Tanganyika Territory.** Formerly German East Africa, British mandatory state; area, 365,000 square miles; capital, Dar-es-Salaam. It is still largely undeveloped, but the Central and Usambara Railways have made great areas available for coffee, coconut, caoutchouc, sugar and cotton planting, while there are many sheep and cattle and valuable mineral deposits.
surface of, 9-3054
formerly German East Africa, 9-3050
- Tangerines,** variety of orange, 6-2058
- Tangier.** Moroccan international port on the Strait of Gibraltar. It is a favorite tourist resort. It is surrounded by ancient ruins of walls, and by garden areas.
- Tangrams,** 13-4751
- Tanks.** The name given during the World War to armed and armored automobiles propelled on the caterpillar-traction system and first used in active service in 1916 by the British. They were able to clamber across trenches, and their armor protected their occupants from rifle and machine-gun fire.
- Tanks, Oil,** 13-4552
- Tannic acid,** see Tannin
- Tannin**
from sumac, 9-3154
in tea, 5-1607
obtained from mangrove, 9-3266
sources and use in tanning, 5-1550
- Tannin, Artificial,** 5-1550
- Tanning**
* methods, 5-1549-50, 1555-58
trees' products used in, 12-4378-79
Pictures, 5-1555-58
- Tansy,** weed, description, 15-5394
Picture of flower (in color) 13-4877
- Taoism,** a religion of China, 9-3999
- Tape-grass.** Pictures, 3-1028
- Tapestry.** A fabric consisting of a warp upon which threads of wool, silk, gold and silver are woven by a needle to produce a pattern. Tapestry was generally used to cover walls of large rooms in the Middle Ages. Later it was also used for covering furniture. Historically the Bayeux tapestry, representing the invasion of England by William the Conqueror, is the most famous of all tapestries. Arras, Brussels, Gobelin, Aubusson and Jacquard are all types of tapestry.
- Tapeworm.** A parasitic worm, tape-like in form and varying in length from a tiny creature to one several yards long, found in the alimentary canal of higher animals including man. It absorbs nourishment from food taken in by the intestines of its host. Its body is divided into many segments easily broken off, but until its head is obtained the worm cannot be got rid of.
part in forming a pearl, 19-6885, 6888
- Tapioca.** A starchy substance prepared from cassava (root of the manioc) by drying it while moist upon hot plates until the starch-grains swell or even burst. These swollen grains, when placed in boiling water, swell up and form a jelly-like mass.
- Tapir,** animal, 5-1825-28
Pictures, 5-1827
- Tar, Jack**
Question about. Who is Jack Tar? 7-2486
- Tar.** A thick, blackish, sticky material obtained by destructive distillation of organic and bituminous substances such as coal, wood, peat and shale. Coal-tar is obtained largely in the manufacture of gas from coal. Wood-tar is obtained by burning wood without flame, for instance, under a covering of turf.
use of coal-tar in dyes, 2-636
- Tara.** Village in Meath, Ireland, which was for centuries capital of the early Irish kings. On the Hill of Tara stood the royal palace, and there are remains of earthworks and monuments.
- Tarantulas,** spiders, 16-6018
- Tarapacá,** source for nitrates
taken from Peru by Chile, 19-7038
- Tarbell, Edmund C.,** American painter, 10-3455

GENERAL INDEX

- Tardigrada**, or water-bear
can live without food, 2-457
- Tarentum**, Italy, conquered by Romans, 4-1194
- Target**. A mark at which users of firearms, archers, etc., shoot for practice or in competition for prizes. Usually the target is divided into circles, the spaces between which have certain values in counting the score. Originally targets were circular shields made of wood and leather studded with brass, and worn by Gaelic fighters on their left arms.
- Tariff**. Duties or taxes according to a fixed list on goods coming into or going out of a country. The word is applied also to the laws which regulate such duties. The purpose of a tariff is either to raise money for carrying on government or to protect the industries of a country by putting a charge on things made in foreign countries.
explanation, 5-1700; 13-4555
in England, tax on corn repealed in 1830's, 7-2293
- Tarik**, Saracen chief
conquest of Spain, 14-5042
- Tarim River**, Asia, 18-6588, 6590
- Tarkington**, Booth, novelist, 14-5010
- Tarleton**, Banastre (1754-1833). British soldier in American Revolution.
combat with Col. Washington, 4-1171
Picture, portrait, 4-1161
- Tarnishing**, explanation of, 10-3477
- Tarquinius the Proud**, king of Rome, 4-1361-62
- Tarragora**. Spanish Mediterranean port, with a 12th-century cathedral and many Roman remains. These include an amphitheatre, an aqueduct and the Tower of the Scipios.
- Tarshish**, ships of, 11-3910
- Tartaric acid**. An acid compound of carbon, hydrogen and oxygen. The commercial article is obtained from argol, a product of grape-juice fermentation. Purified argol is called cream of tartar. Tartaric acid is used in dyeing, calico-printing and in medicine.
- Tartars**
invasion of Poland, 13-4680
invasion of Russia, 16-5691
retreat from Volga to Great Wall, 5-1599
Russian republic of, 16-5850
- Tartarus**, in mythology, 9-3237
- Tasman**, Abel Janszen, early explorer, Australia, 7-2463
discovered Fiji Islands, 9-3302
- Tasmania**, account of, 7-2470
origin of name, 7-2463
- Tasmanian devil**, animal, 7-2509
Picture (gravure), 7-2506
- Tasmanian wolf**, 7-2506
- Tasso**, Torquato, Italian poet, 17-6154
Picture, portrait, 17-6149
- Taste**, sense of
* Smell and taste, 11-3955-58
classification of tastes, 11-3957
taste-bulbs in tongue, 6-1933; 11-3957
Questions about
Why are we sure that pure water has no taste? 14-5225
Why do our tears taste of salt? 2-688
Why do we have different tastes in eating? 15-5516
Why do we say that sugar is sweet? 1-310
- Tate**, Nahum, hymn-writer, 12-4437
- Tatler**, early English periodical, 5-1621
- Tatti**, Jacopo, *see* Sansovino
- Tattooing**. Pricking the skin and inserting different pigments or colors in the pricks to form an indelible pattern on the skin. Uncivilized peoples often cover their bodies with fantastic patterns. Sailors sometimes have designs tattooed on their arms or chests.
- Taughannock Falls**, N. Y. state, note and picture, 10-3467
- Taupo**, Lake, New Zealand, 7-2574
- Taxes**
* account of, 13-4553-56
direct and indirect, 5-1700; 13-4555
- Taxidermy**. The art of preparing and preserving the skins of animals and stuffing and mounting such skins so as to resemble as closely as possible the living animals.
- Tay Bridge**, Dundee, note and picture, 1-35
- Taylor**, Bayard, *see* Poetry Index, for poems and notes
- Taylor**, Benjamin Franklin, *see* Poetry Index, for poem and note
- Taylor**, Jane, *see* Poetry Index, for poems and notes
- Taylor**, Jeffreys, *see* Poetry Index, for poems and notes
- Taylor**, Zachary, president of U. S. administration, 7-2429; 11-3940
in Mexican War, 6-1918-20
life, outline of, 11-3952
Pictures
portrait (gravure), 11-3947
in Mexican War, 6-1919
- Tayra**, animal, 3-872
Picture, 3-870
- Tea**
account of, 7-2532, 2536
* production, 2-761-72
source of, 5-1626
tax on, in American colonies, 4-1162
tea trade, and clipper ships, 11-3919
varieties, 7-2536
Questions about
Why do tea and coffee keep us awake? 4-1451
Why do they say that strong tea is bad for us? 5-1607
Why does the tea run through a lump of sugar? 3-879
Pictures
* production, 2-760-72
leaf, flower and fruit (in color), 8-2000
plant, with flowers and fruits, 7-2534
- Tea cloth**, *see* Tablecloth
- Tea-party**, how to prepare, 9-3376
- Tea tiles**, how to make from clay, 13-4620
- Teach**, Edward, pirate, 2-554
- Teachers**
* Immortal three, 16-5915-20
* Men who gave us schools, 14-5247-54
- Teak**, tree, 12-4249
- Teals**, ducks, 11-3888
Pictures (in color), 8-2899
cinnamon teal, 10-3624
- Teapot Dome**, Wyoming. *Picture*, 18-6436
- Tears**, account of, 1-73-74
diagram of tear duct, 10-3686
Questions about
Why do our tears taste of salt? 2-688
Why do I laugh and cry? 1-73-74
- Tears of the Muses**, poem by Spenser, 3-1120
- Teasel**, plant
Fuller's teasel, use of, 9-3156
Pictures, 1-331
Fuller's teasel, 9-3155
Picture (in color), 14-4989
- Technicolor process**, in taking color pictures, 18-6600
- Tecumseh**, Indian chief, 6-1907
- Tecumseh**, drama by Charles Mair, 14-5107
- Teeth**
* description, and care of, 6-1929-31
animals with peculiar teeth, or none, 7-2393-2400
horse's, peculiarity of, 6-2011-12
snake's, poison in, 16-5842
Questions about
What makes our teeth chatter when we are cold or frightened? 10-3475
Why cannot human beings grow a third tooth? 4-1452
Pictures
jaws, showing position of teeth, 6-1931
showing growth in jaw, 6-1929
- Tegner**, Esaias, Swedish poet, 19-7014
Picture, portrait, 19-7009
- Tegucigalpa**. Capital of Honduras, Central America, near gold, silver and marble mines.
- Teguexins**, lizards, 14-5232
Picture, 14-5233
- Teheran**, Persia, 3-910
Pictures, 3-920
- Tejada**, Sebastian Lerdo de, president of Mexico, 19-7140
- Teju lizards**, 14-5232
Picture, 14-5233
- Telegrams**, game, 8-2745
- Telegraph**
* How we send a telegram, 17-6049-62
across Australian desert, 7-2468
engine-room, on ship, 12-4421
first telegraph in America, 17-6238
first telegraph in England, 17-6237

GENERAL INDEX

Telegraph (continued)

- * invention of, 17-6235-48
- printing-telegraphs, 17-6052, 6057, 6060
- record time of message across Atlantic, 17-6062
- simplex printer, and pictures, 17-6058
- type-printing, invented by Hughes, 17-6246
- Questions about*
- What are the little white cups on the telegraph poles? 16-5962
- What are the wire hooks on the crossbars of telegraph poles? 7-2612
- Why do the telegraph wires vibrate or hum? 15-5614, 5616

Pictures, 17-6049-62

- Telegraph, Submarine, *see* Cables, Submarine
- Telegraph, Wireless, *see* Radio telegraph
- Telegraph-plant, Indian, movements of, 2-746
- Tel-el-Amarna tablets, in cuneiform writing, 2-654; 18-6670

Telemachus, Christian martyr, 13-4860

martyrdom at Colosseum, 9-3065

Telephone

- * Wonder of the telephone, 17-6182-88
- at Centennial Exposition, Philadelphia, 17-6244
- Bell's invention, 17-6242, 6244
- dial, how to use, 17-6188
- first to transmit musical notes, 17-6242
- growth of use, 17-6186, 6188
- * invention of, 17-6183-84, 6235-48
- inventions, recent, 17-6188
- pictures sent by wire, 17-6056, 6060, 6188
- suggestions for using, 17-6186
- toy, how to make, 17-6183-84
- used with radio, 17-6370

* Pictures, 17-6182-89

- Telephone, Wireless, *see* Radio telegraph
- Telephone probe, in surgery, 17-6244
- Telephotographs, pictures sent by wire, 17-6056, 6060, 6188

Telescope

- first one made by Galileo, 10-3411; 1-280
- invention of, 13-4671
- simple, how to make, 12-4265

Teletype, note and picture, 17-6059

Television. The seeing of a distant object by means of an electrical device which transforms light waves into waves that travel through space or over wires, then changes them into light waves again at the receiving end.

Tell, William, Swiss hero, 19-7217-19

Tell, coastal plain, North Africa, 18-6810

Tellers of tales, * 6-2253-58

Temesvar, or Temisoara. Capital of the Rumanian Banat. The centre of a great grain, tobacco and leather trade, it has two cathedrals.

Temperature

- * Heat and temperature, 16-5661-63
- * Hot things and cold things, 15-5423-27
- * How heat works for us, 15-5569-73

body

- affected by color of clothing, 14-5086
- regulation by sweat, 4-1418-19
- of camel, variations in, 5-1596, 1598
- of birds, 8-2758

See also Cold—sense of

- Centigrade scale, 14-4902
- effect of seasons on, 8-2794
- effect on stiffness or bending, 3-879
- explanation of the term, 15-5572
- Fahrenheit scale, 14-4902-03
- influence on winds, 18-6692
- of earth, factors influencing, 8-2664, 2666
- For general list, *see* 20-7581

Questions about

- Do things weigh heavier or lighter when hot or cold? 11-3977
- Is our blood cold when we feel cold? 7-2485
- Where does the warmth in our bodies come from? 14-5218
- Why does hot water take up more room than cold? 16-5660

Tempering, or annealing. Bringing a metal to a proper degree of hardness and elasticity for use by alternate heating and cooling.

Tempest, play by Shakespeare

criticism, 3-986

story of, 8-2687

Tempestas, in mythology, 9-3234

Templars. Secret society of monastic knights to defend the Holy Sepulchre and pilgrims to Jerusalem; founded, 1118; dissolved, 1312.

Temple Church, London, 16-5966

Temples

- Egyptian, 14-5211-12
- Greek, 15-5341-42
- in India, 15-5470-71
- of Diana, Ephesus, 7-2604; 15-5344-45
- of Wingless Victory, Athens, 15-5344
- oldest on earth, 14-5208
- Roman, 15-5348

Pictures

- carved interior of Indian temple (gravure), 1-72
- different types of, 8-3010
- Egyptian (gravure), 14-5213-16
- Erechtheum at Athens, 3-1068
- Greek and Roman (gravure), 15-5350-56
- Hindu, 9-3183, 3185; (gravure), 8-2832-35
- Japanese, 2-569
- Madura, India, 8-2701; (gravure), 9-3093
- of Diana, at Ephesus (gravure), 7-2608
- of Vesta, Rome (gravure), 4-1205
- oriental, 15-5478-80
- Parthenon, Athens, 3-1079
- temple of Solomon, Jerusalem, model of, 19-7155

"Ten Thousand," Greek soldiers with Xenophon, retreat of, 3-1081

Tenant. A person who holds real property by private ownership or any kind of title; or, as more frequently used, a person who rents property from another person, the rent for and the time of holding the property being put down in writing in a document called a lease.

Tendon, definition of, 5-1803

Tendrill, part of plant, movement of, 2-744

Teneriffe. Largest of the Canary Islands, covering 780 square miles. Of volcanic origin, it rises to over 12,000 feet in its famous Peak, and is extremely beautiful and fertile; Santa Cruz, the capital, exports much fruit.

Teniers, David, the Younger, Flemish painter

life and work, 5-1586, 1588

Pictures

- Players at Tric-trac, 5-1593
- Prodigal Son, 5-1591

Tennant, Edward Wyndham, *see* Poetry Index

for poem and note

Tennessee. Southern state on the Mississippi's left bank; area, 42,022 square miles; capital, Nashville. There are iron, coal, lumbering and varied agricultural industries. Cotton and lumber are the chief manufactures and the state is second in the production of marble. Memphis, the largest city, is a busy river port. Abbreviation, Tenn. Nickname, "Big Bend State," "Volunteer State" or "Hog and Hominy State." Flower, passion flower. Motto, Agriculture, Commerce. The name comes from an Indian word meaning "curved spoon." First settlement, Watauga, about 1769.

described in Southern States, 13-4517-28;

14-4889-4900

- history (arranged chronologically)
- early settlements, 6-1906, 1908
- James Robertson and, 6-2196-97
- sets up State of Franklin, 6-1908
- admitted to Union, 6-1908
- in War of 1812, 5-1706
- secedes (June 8, 1861), 7-2432
- in Civil War, 7-2433, 2436, 2440
- presidents from, 8-2676

Pictures

- Chattanooga, views of, 14-4897
- flag (in color), 19-7190
- Hales Bar Power Plant, 15-5429
- home of Andrew Jackson, 11-3941
- marble quarry, 13-4528
- Moccasin Bend, 13-4521
- water-front, Memphis, 16-5657

Tennessee River. American river formed by the Clinch and Holston rivers, Tennessee. It flows into the Ohio River, 1,200 miles.

Pictures. Hales Bar Waterpower and Steam-power Plant, 15-5429

Moccasin Bend, 13-4521

Tennis. directions for playing, 13-4621-22

Tennyson, Alfred, Lord

* life and writings, 10-3469-72

See also Poetry Index for poems and notes

Pictures, portrait, 10-3471

portrait, with mother, 15-5618

Tenrec, Madagascar, animal, 1-320

Picture, 1-317

GENERAL INDEX

Tense. In grammar, one of the forms or set of forms which a verb takes in order to indicate time of action.

Tenting on the Old Camp Ground, song, origin of, 13-6514

Tents, how to make, 2-624

how to put up, 5-1772

Terborch, Gerard, Dutch painter, 5-1594

Picture, Lady Reading a Letter, 5-1587

Terburg, Gerard, see Terborch, Gerard

Terebinth, tree, yields turpentine, 9-3151

Teredos, see Shipworms

Terence, Roman author, 16-5909

Picture, portrait, 16-5907

Terminus, deity of boundaries, 9-3235

Termites, insects, account of, 17-6067

food for ant-eaters, 7-2397

Terns, birds

* account of, 11-4121-22

fly from Arctic to Antarctic, 8-2762

killed by crabs, 16-5954

of southern North America, 14-5017-18

Pictures, 8-2759; 11-4123

mother with chick, 8-2761

nest, 13-4765

noddy, 14-5019

Pictures (in color)

arctic tern, 9-3283

least tern, 9-3130

roseate tern, 9-3129

sandwich tern, 9-3282

Wilson's tern, 9-3282

Terpsichore, muse of the dance, 9-3228

Terra, the earth, regarded by Greeks as mother of all, 9-3226

Terra-cotta. A hard, unglazed pottery, harder baked than brick but of finer quality, used as a building material or for statuettes and rougher vessels and ornaments. The color varies according to the earth used. Sometimes the surface is enameled.

Terra Nova, ship, 14-5096

Terrace. In geology, a strip of almost level land dropping down sharply on one side to a body of water. Sometimes it is nothing more than a raised beach. Often used to denote a row of adjoining houses. In landscape gardening, an artificial terrace is often built up by means of masonry and turf.

Terrapin, or water turtle, 14-5234-35

Terriers, dogs, 2-718

Pictures (grave), 2-714-16

Territory. A domain or piece of land belonging to an individual, or the extent of land and water under the jurisdiction of a sovereign state. In the United States and Canada the word is used to describe large areas within those countries which have incomplete state or provincial governments and are governed largely from the federal center.

Terror, ship, 14-5090-91

Terror, Mount, discovered by Sir J. C. Ross, 14-5090

Terror, Reign of, 6-2134

Terry, Ellen, actress

Picture, portrait, in group from Merry Wives of Windsor, 3-841

Tesla, Nikola (1857-). Serbian-American inventor and electrical engineer. Invented the system of alternating-current power-transmission and the induction motor.

Tests, Educational

list of books giving tests for little children, 10-3636

Thetys, in mythology, 9-3235

Te-Umman, king of Elamites, 2-656

Teutobochus, barbarian king, and bones of mastodon, 5-1784

Teutoburger Wald, Battle of. Annihilation of three Roman legions under Varus by the German hero Arminius, or Hermann, in A.D. 9. Arminius ambushed the legions on the march in difficult forest country, and hardly a Roman escaped. "Varus, give me back my legions!" exclaimed Caesar Augustus, on hearing of the disaster.

Teutonic tribes, 11-3959

Tewkesbury, England

Picture, Abbey (grave), 16-5975

Texas. Largest state in the Union; area, 265,896 square miles; capital, Austin. Part of the state consists of arid plains, but in the fertile sections cotton, corn, rice and other cereals,

Texas (continued)

sugar and tobacco are abundantly produced; stock-raising and the coal and petroleum production are important; lumbering, petroleum refining, meat-packing and cottonseed products are also important. San Antonio is the largest city. Dallas, Houston, Fort Worth and Galveston are the chief towns. Abbreviation, Tex. Nickname, "Lone Star State" or "Beef State." Flower, bluebonnet. Texas is an Indian word meaning "friends" or "allies." First settlement, thought to have been made at San Antonio, about 1692.

described in Southern States, 13-4517-28;

14-4889-4900

history (arranged chronologically)

explored by Spaniards, 1-244, 252

La Salle builds a fort, 1-250

Americans settle in, 6-1916

declares independence, 6-1916; 19-7136, 7138

annexed to United States, 6-1918

Mexican War, 6-1918-20; 19-7138

secedes from Union (Feb. 1, 1861), 7-2430

Galveston only Confederate port, 7-2438

produces most cattle, 9-3207

petroleum production, 9-3210; 13-4538

Pictures

Alamo, 18-6829

Alamo Plaza, San Antonio, 13-4527

Cameron Park, Waco, 14-4895

Dallas by night, 14-4892

field of Kafir corn, 13-4523

flag (in color), 19-7190

helium plant, Fort Worth, 14-4891

oil tanks, 13-4552

oil well, 13-4549

skyscrapers in Dallas, 14-4898

street in Fort Worth, 14-4898

Texas fever in cattle, transmitted by a tick, 16-6019

Texel. Westernmost and largest of the Dutch Frisian Islands; area, 71 square miles. Here Blake defeated a Dutch fleet under Van Tromp in 1653.

Textile. A woven fabric, such as cotton, silk, linen, rayon and wool, or a material suitable for weaving, such as wool, flax, hemp, cellulose, etc.

block printing, directions, 15-5336

industry in U. S., 9-3214, 3216

See also Cotton; Linen; Rayon; Silk; Wool

Thackeray, William Makepeace, novelist

* life and writings, 8-2737-38

See also Poetry Index, for poems and notes

Picture, portrait, in his study, 8-2731

Thales, Greek astronomer and philosopher,

1-201

discovered amber's property of attraction,

4-1243

Picture, portrait, 1-201

Thalia, muse of comedy, 9-3228

Thallophytes, group of plants, 10-3721

Thames. Longest and most important English river, draining 5,900 square miles. Rising in the Cotswolds, in Gloucestershire, it flows through a wide estuary into the North Sea, being six miles broad at its mouth. Oxford, Abingdon, Henley, Reading, Maidenhead, Windsor, Kingston, Richmond, London, Tilbury, Sheerness and Southend are the chief places it passes. Below London the Thames forms the greatest port in the world, 215 miles.

Thames Tunnel, built by Brunel, 19-7206

Thanatos, or Death, in mythology, 9-3238

Thanet, Isle of. In England, the Kentish district separated from the rest of the county by the Stour. Once completely an island, it is believed to have been the landing-place of the Jutes under Hengist and Horsa. It is famous for its watering-places.

Thankfulness

Poem about. Boy's Thanksgiving, by R. M.

Dennis, 6-2152

Thanksgiving Day

first celebration and later ones, 6-2090

Poem about. Thanksgiving Day, by L. M.

Child, 19-6873

Picture, in Plymouth colony, 6-2089

Thar. Desert in northwest India, embracing part of Sind and Rajputana.

Thaw

Question about. Why does the thaw burst the water-pipes? 4-1450

GENERAL INDEX

- Thayer, Abbott**, American painter, 10-3453-54
Pictures
 Caritas (gravure), 10-3457
 Young Woman, 10-3446
- Theatres**
 in ancient Greece, 15-5346
 in Rome, 15-5348
 in Shakespeare's time, 2-721; 3-1122, 1124
 in time of Charles II of England, 4-1357
See also Moving pictures; Stage
Picture, Globe Theatre, Southwark, 2-720
- Theatricals, Amateur**, *see* Amateur theatricals
- Thebes**, Egypt, tombs and temples, 3-812, 818
Picture, statues, 3-819
- Thebes**, Greece, defeated Sparta, 3-1081
- Theiss**, or **Tisza**, Tributary of the Danube, draining 57,000 square miles in the Hungarian plain, 700 miles.
- Themis**, goddess of equity, 9-3227-28
- Themistocles**, Athenian leader, 2-704
 at battle of Salamis, 3-1078
 banishment of, 13-4584
 caused Greek fleet to be built, 3-1076
 in Persian Wars, 13-4584
Picture, portrait, 3-1069
- Theodolite**, surveying instrument, 16-5742
- Theodora**, Byzantine empress
Pictures, from her life, 13-4799
- Theodosius I**, Roman emperor
 rebuked by St. Ambrose, 13-4860
- Theophrastus**, Greek philosopher
 and electricity, 16-5665
- Theotocopuli, Domenico**, *see* Greco, El
- Theresa, St.** Daughter of noble parents and born in Old Castile in 1515. She became a nun at the age of 18, and afterward founded a Carmelite Order for Nuns at Avila, besides many other religious houses. She died in 1582.
- Thermodynamics**, science, 15-5569-70
- Thermometer**, account of, 7-2648-49; 15-5572-73
 how differs from calorimeter, 16-5662
- Thermopolis**, Wyoming
Picture, hot springs, 18-6436
- Thermopylae**, Battle of, 2-704; 3-916, 1078
- Thermos bottle**
Question about. What is a thermos bottle?
 17-6174
- Theseum**, Athens, 15-5343
Picture (gravure), 15-5354
- Thick-knees**, stone curlews, 11-4009-10
- Thicknesse, Sir Philip**, and Gainsborough, 7-2331
- Thieffry, Lieutenant**, Belgian aviator, 17-6293
- Thiers, Louis Adolphe**, president of France, 10-3576
- Thimble**
Question about. Why does a tailor wear a thimble without a top? 16-5962
- Thimble-flower**, name for foxglove, 17-6127
- Thimonier, Barthlemy**, and invention of sewing machine, 19-7212-13
- Things to make and things to do**, *see* list of main articles, 20-7633-44
- Thinking**
 game of thinking, 8-2960
See also Mind
Questions about
 Can we think about things that do not interest us? 1-187
 Can we think without words? 10-3578
 Do animals think? 18-6557
 Where does a thought come from? 16-5839
- Third Estate**, French Revolution, *Picture*, 6-2131
- Thirst**, camel's provision against, 5-1596
- Thirty Years' War**, Germany, 11-3964
- This great world of ours**, * 1-43-48
- Thistle-bird**, name for goldfinch, 14-5145
- Thistles**
 cardoon thistle, spreading of, 4-1276
 garden varieties, 19-7171
 Russian, description, 15-5394
 spear-thistle, 15-5390
 why Scotch emblem, 12-4208; 17-6181
Picture
 spear plume, 15-5389
Pictures (in color), 13-4877
 common star thistle, 14-4990
 creeping plume, 14-4994
 dwarf plume, 14-4985
 milk thistle, 14-4995
 musk thistle, 14-4996
 plume thistle, 14-4986; 16-5881
 slender-flowered thistle, 14-4989
 sow-thistle, 15-5400
- Thomas à Becket, St.**
 death of, 5-1568
 struggle with Henry II, 8-2848
Picture, portrait (in group), 5-1569
- Thomas à Kempis, St.**, life of, 13-4866
Picture, portrait, 13-4859
- Thomas the Rhymer**
 legend about Poet, goblin and donkey, 15-5537
- Thomas, Edith M.**, *see* Poetry Index for poem and note
- Thomas, George Henry** (1816-70). American soldier, born in Virginia. He graduated from West Point, served in Mexican War, and refused to resign from Union army when Virginia seceded. Fought chiefly in the West.
 at Chickamauga, 7-2436
 battle of Nashville, 7-2440
Picture, portrait, 7-2437
- Thomas, John**, American general
 aided attack on Quebec in 1776, 3-942
- Thomas, Theodore**, founded Chicago Symphony Orchestra, 19-122
- Thompson, David** (1770-1857). Canadian explorer who explored the Columbia and Kooteney rivers from their rising to their outlet between 1807 and 1811.
 explorations of, 12-4337
- Thompson, Francis**, English poet, 12-4231
See also Poetry Index for poem and note
- Thompson, Sir John**, premier of Canada, 4-1491
- Thompson, William**, American general
 expedition against Three Rivers, Canada, 1776, 3-942
- Thompson-Seton, Ernest**, *see* Seton
- Thomson, Charles Poulett**, *see* Sydenham
- Thomson, Edward William**, Canadian author, 15-5369
- Thomson, James**, English poet
 life and influence, 6-2028
 possible author of Rule, Britannia, 10-3606
See also Poetry Index for poems and notes
Picture, portrait, 6-2029; 10-3605
- Thomson, Sir Joseph John**, English scientist
 life and discoveries, 4-1254
 and theories of light, 16-5808
- Thomson, Robert William**, invented tire, 4-1406
- Thomson, William**, *see* Kelvin, 1st lord
- Thor**, Norse god, 12-4202-03
- Thoreau, Henry David**, American naturalist and writer
 life, 13-4632; 19-7055-56
Picture, portrait, 19-7051
- Thorgilsson, Ari**, *see* Ari Thorgilsson
- Thorn-apple**, tree, 13-4782-83
Pictures, fruit, 13-4779; (in color), 11-4028
- Thorns**, how to remove from finger, 11-4082
- Thornycroft, Sir Hamo**, English sculptor, 13-4856
Picture, statue of Boadicea, 13-4585
- Thoroughwort**, plant, 16-5728
See also Boneset southern species
- Thorp, N. Howard** (Jack Thorp), cowboy poet, 18-6515
- Thorpe, Rose Hartwick**, *see* Poetry Index for poem and note
- Thorwaldsen, Bertel**, Danish sculptor, 13-4858
 Lion at Lucerne, description, 3-888
- Toth**, a god of ancient Egypt, 3-812
- Tothmes III**, king of Egypt, 3-816
- Thought**, *see* Thinking
- Thought-reading** by cards, 6-2004-45
- Thousand and One Nights**, source of Arabian Nights, 15-5464
- Thousand Islands**, St. Lawrence River, 6-1968, 1960
Picture, 6-1957
- Thousand-legged worms**, *see* Millipedes
- Thrashers**, birds
 account of, 13-4828
 California, 14-5138
Picture, brown thrasher (in color), 13-4843
- Thread**, cotton, how made, 14-5168
See also Spinning
- Three deep**, game, 7-2385-86
- Three-legged race**, game, 3-903
- Three Rivers**, Canada
 Gen. Wm. Thompson advanced against in 1776, 3-942
- Three ways the earth moves**, * 1-235-39
- Thresher**, shark, 16-5894
Picture, 16-5897
- Threshing**, 19-7211
Picture, 19-7209

GENERAL INDEX

- Thrift**, or sea-pink, 14-5162
 note on, 15-5607
Pictures, 15-5607; (in color), 15-5609
- Thrift and saving**, 17-6361-62
- Throat**
Question about. Why does a lump rise in my throat when I cry? 6-2123
- Throgmorton, Elizabeth**, Sir Walter Raleigh's wife, 5-1812; 14-4967
- Throwing light**, game, 8-2745
- Throwing the baseball**, game, 4-1400
- Thrushes**, birds
 account of, 9-3139-40; 13-4839
 in western North America, 14-5137
 hermit thrush, 14-5137
 laughing, variety of babblers, 9-3285
 water, variety of warbler, 9-3279
Pictures, 9-3137
 wood-thrush, 13-4833
Pictures (in color)
 missel thrush, 8-2898
 song thrush, 8-2899
 varied thrush, 12-4372; facing 14-5133
- Thucydides**, Greek historian, 3-1080; 16-5751
Picture, portrait, 16-5747
- Thun**, Switzerland
Picture, 17-6085
- Thunder**
 cause of, 8-2924
 electrical changes during thunderstorms, 16-5670
 peal caused by echoes, 17-6316
 speed of sound, compared with lightning, 2-457
Questions about
 How does a soft cloud make a noise when it thunders? 3-978
 Which side of the cloud is the thunder on? 12-4280
 Why do some people get headaches before a thunderstorm? 5-1751
 Why does milk turn sour in a thunderstorm? 5-1609
- Thursday**, how named, 12-4202
 consecrated to Jupiter, 9-3226
- Thyme**, flower
 account of, 17-6131
 note on wild thyme, 17-6125
Pictures
 Basil thyme (in color), 14-4989
 mountain thyme (in color), 15-5609
 wild thyme, 17-6125
- Thyme, Water** (*Philotria canadensis*), plant, 16-5872
Picture, 3-1026
- Thymus**, gland, 9-3222
- Thyroid gland**, 9-3222
 produces metamorphosis in amphibians, 15-5458
- Tian Shan**. Lofty mountain range in Turkestan, Asia, rising to 24,000 feet in Khan Tengri.
- Tiber**. Italian river which flows past Rome on its way from the Apennines to the Tyrrhenian Sea. 240 miles.
- Tiberius**, Roman emperor
 life and reign, 5-1860-61
Picture, statue of, 5-1860
- Tibet**. Buddhist country of central Asia, nominally a dependency of China, but ruled actually by the Dalai Lama of Lhasa, the capital. Lying between the Kwen Lun and the Himalayas, it is the loftiest region in the world, ranging from 10,000 to 17,000 feet; it covers 463,200 square miles. The north and west consist of treeless tablelands, with steppes pasturing innumerable herds of yaks, horses, asses, goats and antelopes; sheep are reared in the south, and scanty crops are grown in the valleys of the Indus and Sanno. Transport is chiefly by sheep and yaks. The Tibetans are good craftsmen, but trade has been handicapped by their hostility to foreigners, Lhasa not having been visited by Europeans till 1904.
 description, 18-6584-85, 6589-91
 and China, 18-6584, 6591
Pictures, 18-6585
 scene in monastery, 18-6592
- Tic polonga**, snake, 15-5414
- Tickling**, cause of laughter, 1-73
Question about. Why do we not laugh when we tickle ourselves? 11-3978
- Ticknor, Francis Orerry**, see Poetry Index, for poem and note
- Ticks**, insects, 16-6019
Picture, 16-6019
- Ticonderoga, Fort**
 captured by Americans, 4-1164
 history, in pictures, 18-6836
Picture, capture of, 6-1907
- Tidal bore**, a tidal current which rushes roaring upstream in certain rivers with such force as to produce one or more high, abrupt wave-fronts, very dangerous to shipping. Bores are particularly high in the Amazon River of Brazil and certain rivers of India and China.
- Tide, Neap**, a tide in which the high water is lower than the average. Neap tide occurs when the moon is in the first or the third quarter and when, consequently, the sun and the moon are at right angles and their tide-raising forces work in opposition.
- Tide, Spring**, a tide in which the high water is higher than the average. Spring tide occurs when the moon is new or full, the sun and moon being then in a straight line either on the same side or opposite sides of the earth, with their tide-raising forces working together.
- Tides**
 * caused by moon's attraction, 2-583-84
 power from, 7-2542
 sun's influence on, 2-583-84
Questions about
 Can we make the tides work for us? 18-6558
 Where does the water go at low tide? 11-3843
 Why does the tide come in and go out? 10-3734
- Tientsin**, China, port of Peking, 2-434
- Tiepolo, Giovanni Battista**, Italian painter, 3-1107
- Tierce**, game, 3-1029
- Tierra del Fuego**. Desolate island at the southern extremity of South America, from which it is separated by Magellan Strait.
- Tiflis**, Russia, 16-5858
Picture, 16-5853
- Tigers**, description, 2-494
 toy, how to make, 3-895
Poem about. The Tiger, by William Blake, 3-1133
Question about. Why has a tiger stripes on his coat? 5-1751
Picture
 sabre-toothed, of Pleistocene period, 6-1925
Pictures (graveure), 2-497, 500
- Tiglath Pileser I**, king of Assyria, 2-654
- Tiglath Pileser III**, king of Assyria, 2-655
- Tigris River**, Asia, 2-647, 656; 18-6669
- Tilden, Samuel J.**, contest for presidency, 8-2669-70
- Tilefish**, description, 16-5900
- Tiles**, how to make from clay, 13-4620
- Tiller**, part of steering apparatus, 14-5002
- Tilly, Count of (Johann Tserclaes)**, German general, 11-3964
- Tilsby, John**, made brass pins, 9-3042
- Tilton, Theodore**, see Poetry Index for poem and note
- Timber**, see Forests and forestry; Lumber and lumbering; Trees
- Timbuctoo**. Caravan centre on the fringe of the Sahara, in the French Sudan. Its existence was known to Europe in the 14th century, and it owes its reputation probably to its remoteness
- Timby, Theodore Ruggles**, and iron-clad ships 7-2434
- Time**
 how to tell by sun, 6-2261
 learning to tell time, 6-2267
 measurement of, 14-4901
 origin of our measures, 11-4132
 standard unit, day, 14-5217
 story about, Story of the days, 12-4199-4202
 zones, explanation, 16-5845
 names of divisions, 16-5842
 map of world, showing zones, 16-5841
 See also Calendar
Questions about
 What is a day? 14-5217-18
 What is Greenwich time? 5-1808
 What is meant by a time zone? 16-5845
 Where does the day begin? 16-5845
 Who arranged the days? 11-4131-32
 Who first thought of standard time? 16-5842
 Why, when I wake, do I seem to have just gone to sleep? 10-3732
- Time lock**, explanation of, 6-2022

GENERAL INDEX

- Timer**, how to make, 5-1651
- Timocharis**, Greek astronomer, 1-201
- Timothy-grass**, fodder-grass, 10-3653
name and history, 7-2410
Pictures, 10-3653; (in color), 10-3523
- Timrod, Henry**, American author, 13-4815
- Timur**, *see* Tamerlane
- Tin** (Sn). A silvery white metal that does not tarnish easily and is malleable. The mineral cassiterite is the principal source of tin. The principal uses of tin are in making tinplate, solder and composition metals. The tin-producing regions of the world are the Malay States, Bolivia, Dutch East Indies, Australia, Cornwall, England and China.
boiling and melting points of, 8-3014
mines in Tasmania, 7-2470
- Tin cans**, making sugar scoop from, 2-747
Questions about
Why are cans for preserving food generally round? 15-5517
Why is the bottom of a can holding food ridged? 7-2470
- Tinamou**, bird of South America, 12-4368
Pictures, 12-4363
young tinamous, 8-2761
- Tindale, William**, *see* Tyndale
- Tinderboxes**, description, 19-6965
notes with pictures, 1-309
- Tiniest living things**, * 2-437-439
- Tintern Abbey**. Remains of a beautiful Cistercian abbey, 5 miles north of Chepstow, Monmouthshire, England.
- Tintoretto (Jacopo Robusti)**, Italian painter, 3-1106-07
in Vienna, 4-1462, 1464
Pictures
portrait, 4-1455
Admiral Veniero, 4-1454
Marriage of St. Catherine (gravure), 3-1112
- Tiny**, pigmy elephant in New York Zoölogical Gardens, 6-2146
- Tipperary**. County of Munster, Ireland; area, 1,662 square miles; capitals, Clonmel and Nenagh.
- Tippoo Sahib**, sultan of Mysore
defeated by British, 6-2205
- Tired feeling**
Question about. What happens when we get tired? 12-4503
- Tires, Rubber**
how made, note with pictures, 1-311
invention of, 4-1406
machine for wrapping, with pictures, 14-4951
Question about. How is a motor tire tested? 1-313
- Tirnovö**, old capital of Bulgaria
Picture, 14-4925
- Titan**, moon of Saturn, 10-3410
- Titanotheres**, prehistoric animal, 5-1784
- Titian (Tiziano Vecelli)**, Italian painter, 3-1104, 1106; 4-1461-62
Pictures
Alfonso d'Este (gravure), 3-1109
Ariosto, 3-1105
Empress Isabella (gravure), 3-1110
Flora (gravure), 3-1111
Holy Family (gravure), 3-1111
- Title**. An inscription or name; an appellation of honor belonging to a person through right of rank, of position or courtesy; in law, the right of possession and of absolute ownership of property.
- Titmouse**, bird
account of, 9-3138
tufted, 14-5025
Pictures
black cap titmouse (in color), 12-4371
tufted titmouse, 14-5025
- Tits**, birds, account of, 9-3138
Picture
nest, 9-3137
Pictures (in color)
blue tit, 8-2897
bush tit, facing 14-5140
coal tit, 9-3132
crested tit, 9-3283
great tit, 9-3131
long-tailed tit, 9-3283
marsh tit, 9-3284
Sultan tit, 10-3622
- Titus**, Roman emperor
life and reign, 5-1863
Picture, statue of, 5-1864
- Titus Aurelius Antoninus**, *see* Antoninus Pius
- Titusville**, Pennsylvania
Drake oil well, 13-4534-35
- Tivoli**, Italy
Pictures, cascades, 13-4567
temple (gravure), 15-5351
- Toad-flax**, plant, 13-4876
description, 15-5392
note on, 15-5396
Pictures, 15-5396
ivy-leaved toad-flax, flower (in color), 13-4879
pale blue toad-flax, flower (in color), 14-4996
- Toads**, life history of, 15-5453-54, 5456
how differ from frogs, 15-5454
living inside stones, 4-1231
Pictures, 15-5452-53, 5455
- Toadstools**, *see* Mushrooms
- Tobacco**, account of, 9-3156
Brazilian production, 19-7046
cultivation in Southern states, with pictures, 13-4525
first use in England, 14-4967
in colony of Virginia, 2-546
microbe destroyed by X-ray, 16-5943
tax on, 13-4556
United States crop of, 8-2679
Pictures
cutting tobacco in Brazil, 19-7046
plants growing, 9-3150
- Tobago**, British possession, 9-3190
- Tobin, G. T.**, artist
Picture. Portrait of R. W. Emerson, 13-4630
- Tobolsk**. Old west Siberian city where the Tobol and Irtysh meet.
- Todies**, birds, 9-3372
Picture, San Domingo (in color), 10-3623
- Toes**
Question about. Could we walk without our toes? 1-74
- Togo, Heiachiro**. Japanese admiral in the Russo-Japanese War; born, Kagoshima, 1847.
- Togoland**. British West African colony under Gold Coast administration; area, 12,600 square miles. The former German colony has been shared between Britain and France, the greater part becoming French.
part governed by British, 9-3056
- Tokio**, capital of Japan
description, 2-570
earthquake, 1923, 2-568
Pictures
avenue of cryptomeria trees, 2-567
earthquake disaster, 2-573
- Toledo**. Large American port on Lake Erie, in Ohio. Besides having a great trade in lumber, grain and coal, it is a busy manufacturing centre.
- Toledo**, Spain, 14-5050
Alcazar, 9-3356
first paper in Europe made there, 3-1054
Picture, 14-5049
- Toll**. A tax paid or duty imposed for some use or privilege or other reasonable consideration. *Toll thorough* is the charge paid for the use of a bridge or highway by those who use it as a thoroughfare for personal travel or conveying goods. A gate across the bridge or road prevents passage of those who do not pay the charge. There are very few toll gates now in North America.
- Tolstoy, Alexis, Count**, Russian author, 19-6908
- Tolstoy, Leo, Count**, Russian author, 19-6910-11
Pictures
portrait, by Jan Styka, 8-2852
portrait, with father, 15-5618
at work in the fields, by Repin, 19-6909
scenes connected with his life, 19-6904
- Toltecs**, early inhabitants of Mexico, 19-7134
- Toluol**, use in making explosives, 2-636
- Tom Brown's Schooldays**, by Hughes
* quotations and summary, 14-5149-55
- Tom Thumb**, story of, 13-6611-12
- Tom Thumb**, locomotive, note and picture, 5-1615
- Tom Tiddler**
Question about. What do we mean by Tom Tiddler's ground? 14-5219
- Tomahawk**. The war hatchet used by the North American Indians. Before the white man came the heads were made of flint, jasper or other hard stone, but afterward iron was used.

GENERAL INDEX

- Tomatoes**, recent use as food, 7-2614
Pictures, 7-2621; cross section, 2-507
- Tombigbee River**. American river, rising in Prentiss County, Miss.; flows into Mobile River. 475 miles.
- Tombs**
 Chinese, of Ming emperors, 2-432
 early Christian catacombs, 2-576, 578
 Egyptian, 1-290-91; 3-809-10; 14-5211
 Greek, 7-2604; 12-4331-32; 15-5345-46
 in rocks near Persepolis, 3-915
 Mohammedan, 15-5468
 Saracenic, in India, 15-5471-72
Pictures
 in the Taj Mahal (gravure), 15-5479
 Ming tombs, China (gravure), 2-428; 15-5479
 of Atreus, Mycenæ (gravure), 14-5215
 of Cecelia Metella, Appian Way (gravure), 4-1205
 of Death, Paris, 13-4705
 of George Washington, 3-1041
 of Hadrian (castle of St. Angelo), Rome (gravure), 4-1205
 of Mausolus (gravure), 7-2605
 of Pharaohs, Egypt, Pyramids (gravure), 14-5214
 of the Medici, Florence (gravure), 5-1743
 of Ulysses Grant, 3-1041
 of Zenab Aliya, Lucknow (gravure), 15-5480
 on the Appian Way, Rome (reconstruction), 15-5340
- Tomcod**, fish, 16-5780
- Tommy Atkins**
Question about. Who is Tommy Atkins? 7-2486
- Tompkins, Daniel D.**, vice-president of U. S.
Picture, portrait (gravure), 11-3948
- Tompot**, fish. *Picture* (in color), 16-5783
- Tonga, or Friendly, Islands**. Polynesian island group in the British Pacific Islands colony. There are 32 inhabited islands, peopled by industrious and civilized natives. Copra, tropical fruits, coffee and sponges are produced. population, and nation ruling, 9-3188
Pictures
 chief's house, 9-3183
 native woman, 9-3297
- Tongue**, structure and uses, 6-1932-35
 and sense of taste, 11-3957
Question about. Why does mustard burn our tongue? 8-3013-14
Picture, showing taste buds, 11-3957
- Tonkin**. French protectorate in Indo-China; area, 40,530 square miles; capital, Hanoi. Rice, teak, sugar, coal, silk and tobacco are produced, Hai-phong being the chief port.
- Tonsils**. A pair of oval bodies, one on each side of the throat. They are sometimes called ductless glands. Inflammation of these bodies is known as tonsillitis or quinsy.
- Tool-rack**, how to make, 17-6262
- Tools**, care of, and marking, 2-628
 how to clean, 15-5335
 how to sharpen, 13-4735
 For general list, see 20-7633
- Tooth powder**, what it should contain, 6-1931
- Toothache**
Question about. What is to blame when a tooth aches? 16-5962
- Toothwort**, flower, description, 17-6279-80
- Topaz**, account of, 19-7231
Picture (in color), facing 19-7225
- Tope**, fish. *Picture*, 16-5897
- Topeka**. Capital of Kansas on the Kansas River, situated on rolling prairie. Has railroad shops and manufactures flour and butter; founded by the Anti-slavery party after the passing of the Kansas-Nebraska Bill.
Picture, Masonic Temple, 17-6045
- Tones**, mounds, for relief, 15-5470
Picture (gravure), Sanchi Tope, 15-5478
- Tonham, F. W.**, artist
Picture, Savonarola preaching, 13-4867
- Toplady, Augustus Montague**, hymn-writer, 12-4440
 See also Poetry Index for poem and note
Picture, portrait, 12-4439
- Tops**, how to make, 14-5200
 magnetic, how to make, 10-3509
Poem about. Humming Top, by Eugene Field, 6-2150
Question about. Do the people at the Poles spin round like a top? 6-2252
Pictures, different balances, 14-4901
- Torches**, discovery of, 9-3353
- Tories** in American Revolution, see Loyalists
- Tories**, in England, 6-2097
- Tormentil**, flower
Picture, common tormentil (in color), 14-4983
- Tornado**, explanation of, 18-6692
- Tornegats**, mountains in Labrador, 1-110
- Toronto**. Capital of Ontario, Canada, with a frontage of about 10 miles on Lake Ontario, and busy manufacturing industries. A great banking and distributing centre, it is served by the three transcontinental railways and has two cathedrals and three universities.
 burned in War of 1812, 3-945
 Parliament first met there, 1797, 3-944
Pictures
 from Lake Ontario, 6-1955
 Government House, 5-1837
 Parliament Building of Ontario, 5-1836
 view of York (on site of Toronto), 3-943
- Toronto University**, Toronto, Canada. Chartered in 1827 as King's College. Later the college was secularized and received its present name.
Picture, 15-5489
- Torpedo**, fish, description, 16-5774
Picture, 16-5779
- Torpedo**, projectile
 explanation of firing from ship, 18-6821
 use by submarine, 1-198
- Torpedo**, trick in swimming, 8-3024
- Torpedo boat destroyers**, of U. S. navy, 18-6816
Picture, 18-6821
- Torpedo boats**, 18-6816
- Torquatus**, see Manlius Imperiosus Torquatus, Titus
- Torquay**. Watering-place in South Devon, England, on Tor Bay.
- Torrens, Lake**, Australia, discovered by Eyre, 3-864
- Torres**, early explorer, Australia, 7-2463
- Torres Strait**. Wide channel between Australia and New Guinea, with a famous pearl fishery.
- Torrey, John**, American botanist, 19-7054
- Torricelli, Evangelista**
 experiments on air pressure, 15-5286
- Tortoise-shell**, from hawksbill turtle, 14-5235
- Tortoises**, 14-5234-35
 description for game, 8-2880, 3023
 fables about, by Æsop
 The hare and the tortoise, 2-539
 The tortoise and the eagle, 4-1186
 longest-lived animals, 1-185
Pictures, 14-5227, 5235
- Tortuga**, island of West Indies
 buccaneers' settlement, 19-7100
- Tory**. Originally an Irish robber. Then the term was applied to the Cavalier or Court party after the Civil War in England. Gradually the name Tory gave way to that of Conservative.
- Tosi**, inventor of wireless compass, 17-6248
- Tottel's Miscellany**, first collection of English poems, 3-1118
- Toucans**, birds, account of, 9-3370
Pictures, 9-3366
 red-billed (in color), 10-3623
- Touch, Sense of**
 and lines in hands, 11-3842
 and skin, 4-1419-20
 highly developed in man, 8-2947
- Toulon**. Fortified French seaport on the Mediterranean, with a fine harbor and 240 acres of docks. There is a considerable shipbuilding industry.
 siege of, 6-2199
- Toulouss**. French cathedral city on the Garonne, with manufactures of silk and woolen goods, tobacco and agricultural machinery.
 description, 11-3820
 churches, 17-6160
Picture, church of St. Sernin (gravure), 16-5724
- Touraine**. Old French province in the valley of the Loire. Tours, the capital, Amboise and Chinon are the most famous towns. It corresponds to-day to the present department of Indre-et-Loire.
- Tourmaline**, gem, account of, 19-7231
Picture (in color), facing 19-7225
- Tournament**. A contest of skill in which a number of persons take part.
- Tourniquet**, how to make, 14-5001
- Tours**. Old capital of Touraine, France, on the Loire. An important railway centre it has iron,

GENERAL INDEX

Tours (continued)

steel, leather and engineering industries; there are a noble Gothic cathedral and remains of a Roman amphitheatre.

Alcuin and school there, 14-5248

Tours, Battle of, 10-3430

Toussaint l'Ouverture, Haitian leader, 13-4591; 19-7100

Touzel, Edward, heroism at St. Helier, 11-4092

Tower Bridge, London, 1-28

Picture and note, 1-35

Tower of Babel, Babylonian tradition, 2-659

Tower of London

* history and description, 12-4354

part built by William the Conqueror, 4-1439

Picture, 12-4355

Towhee, bird of Oregon, 14-5147

Picture (in color), facing 14-5140

Townhalls

Flemish, 17-6162

Pictures

Breslau, Germany (gravure), 12-4176

Courtrai, Belgium (gravure), 17-6171

in France and Germany, 18-6501

in Holland and Belgium, 15-5503, 5505-06, 5565

Paris, France (gravure), 11-3827

Verona, Italy (gravure), 17-6306

Township. A division of a county with its own officers and political and administrative powers for carrying on minor local affairs, such as road-repairing, maintaining schools, providing for the poor, etc. In the newer parts of the United States and Canada a township contains 36 square miles.

Toxins. Specific poisonous substances resulting from secretion products of vegetable and animal organisms; or, as we may say, poisons given off by certain bacteria or germs when they have entered into chemical combination with animal cells. Antitoxins are substances which neutralize or render harmless such toxins.

Toys

how to mend, 13-4737

Pictures

ancient Egyptian, 3-809

colonial toys, 3-973

Toys, Directions for making

animal

camel, giraffe, monkey, panther, 6-2165

carved with knife, 18-6779-80

goat made from a pear, 18-6642

hippopotamus, wolf, bear, 2-511-12

tiger, lion, buffalo, 3-395

ball that answers questions, 2-623

balls that twist and turn, 7-2380

bean-bag, 1-132

bird that turns around, 6-2264

boats, *see* Boats—toy

bridge of spools, 15-5334

cage of mice, 6-2266

cannon, 11-4085

cart, 15-5334

chariot, 15-5334

clothespin toy, 3-898

cup and ball, 17-6391

dolls' Christmas basket, food for filling, 6-2043-44

furniture from scraps of wood, 5-1765-66

gliders, 2-625

hot-air balloon, 10-3770

jumping frog, from wishbone, 15-5595

kites, 3-900; 16-5770

magnetic top, 10-3509

musical bottles, 17-6387

musical glasses, 15-5333

paper toys, 4-1396

poppin, quill, 15-5337

smoke-ring box, 13-4846

speeder to measure wind, 4-1391

stage, miniature, 14-5203-04

submarine, 10-3503-04

sucker, leather, 3-902

tangrams, 13-4731

telephone, 17-6183-84

tops, 14-5200

tumbling tablet, 4-1398

voice-pictures box, 17-6145

wells, 15-5334

wheelbarrow, 9-3253

whirlwind box, 4-1398

whistle, 11-4085

See also Doll dressmaking

Tracasca Regele, wrote Rumanian national hymn, 17-6253

Traction engine

Question about. Why has a traction engine grooved wheels? 7-2486

Tractors, use in farming, 19-7209, 7211

Trade

benefit to both parties, 4-1158

development from barter, 10-3673-74

result of division of labor, 15-5589

See also Commerce

Trade mark. A distinguishing design or mark adopted by a manufacturer and stamped upon his products to indicate the maker. In most countries trade marks may be registered and protected by law. Trade marks came into use to protect a manufacturer against those who would imitate his goods and sell them pretending them to be the product of the original manufacturer.

Trade unions

function of, 17-6094

at first forbidden in England, 7-2294

Trade winds

account of, 8-2666, 2792

bring rain, 8-2794

Question about. What do we mean by the trade winds? 3-878

Tradition

Question about. What do we mean by tradition? 3-981

Trafalgar, Battle of, 6-2096, 2204

French ships superior, 11-3918

Pictures, 6-2096; (gravure), 6-2210

Trafalgar Square, London, 12-4361

Picture, 12-4359

Tragacanth, plant and gum

account of, 8-2912-13

source and uses, 9-3152

Picture of plant (in color), 8-2997

Tragedy, definition of, 8-2685

Tragopan, pheasant

Picture, horned tragopan, 12-4367

Trail, how to follow, 3-1024

Trailing arbutus, *see* Arbutus

Trall, Mrs. Catharine Farr, Canadian author, 14-5105-06

Trains, Railroad, *see* Railroads—trains

Traitor's Gate. River gate of the Tower of London, through which in old days prisoners were admitted to custody.

Trajan, Roman emperor

life and reign, 5-1863-64

built Forum, 4-1200

Picture, statue of, 5-1864

Trajan's Column, Rome, 15-5347

Picture (gravure), 4-1206

Transcendentalists, group in New England, 13-4630

Transjordanian, government, 18-6672, 6674

Transportation

by water, influence on commerce and industry, 13-1881

map of world, showing means of travel, 1-48

See also Canals; Railroads; Ships

For list of main articles, *see* 20-7627-28

Transvaal

Boer War, 7-2299-2300; 9-3050

founding of, 9-3048

gold mines, output of, 18-6550

joined Union of South Africa, 7-2300; 9-3050

Transylvania. Mountainous plateau in eastern Europe, formerly part of Hungary, but since 1918 a Rumanian province. Over a third of its area is covered by forests, but the soil is generally fertile, and about half the country consists of either cultivated or pastoral lands. Salt, gold, silver, copper, quicksilver, iron and lead are found, and mineral springs abound. Sibiu (Hermannstadt), Cluj (Kolozsvár) and Brassó (Kronstadt) are the chief towns.

Transylvania Company, for settlement of Kentucky, 6-2192, 2194

Trap-ball, game, directions, 4-1400

Trap-door spiders, 16-6016, 6018

Trapping of fur animals, 12-4341

Indian trappers, 12-4341-42

Picture, trapper's tent and pelts, 12-4340

Travel

early ways very slow, 5-1611

rivers aid travel, 7-2538

traveling in U. S. in 1783, 5-1698

GENERAL INDEX

Travel (continued)

See also Transportation

Poems about

Travel, by R. L. Stevenson, 3-1136-37
Traveler's Return, by Robert Southey, 7-2527

Question about, If we could go on traveling upward, where would we end? 17-6175

Traveler and the wolves, game, 6-2164

Traveler's joy, flower

Picture (in color), 13-4877

Traveler's tree, 9-3262, 3266

Picture, 9-3263

Trawling, setting a trawl, 11-4052

in Great Britain, 11-4053

Picture, preparing trawl, 11-4057

Trays, how to make, 4-1283-84

Treadmill. An old-fashioned appliance for producing power by means of a person or animal stepping on movable steps connected with a revolving cylinder or wheel affixed to a shaft which transmits energy to the mill. The wheel on a squirrel cage is on the same principle.

Treason. A breach of faith; a violation by a subject of his allegiance to his country.

Treasure Island, by R. L. Stevenson

* summary, 13-4645-53

Treasury Department. A department of government which has control over the collection, management and expenditure of the public revenue.

Treaties, see names of cities where made, or distinguishing word; as, Paris, Treaty of

Treble. In music, high in pitch; the highest part in harmonized music, in general containing the melody and sung by a soprano voice. It is one of the two clefs used in music for keyed instruments, the other is the bass.

Tree-frogs, account of, 15-5456

Pictures, 15-5452, 5455

Tree-shrews, animals, 1-320

Trees

* American trees in summer, 12-4507-15

* American trees in winter, 13-4635-43

* Beauty trees, 12-4381-86

* Some important timber trees, 12-4245-50

* life and structure, 11-4093-4108

age, how found, 10-3475; 11-4096

dwarf, how to grow, 9-3118

flowers of

notes, with pictures, 11-4097-4108; 12-4251-60, 4387-96

growth, method of, 11-4095-96

habitats in North America, 12-4507-08

height, how to measure, 3-899; 17-6145

estimate, 18-6642

in Cretaceous period, 5-1660

in Devonian period, 4-1176

receiving-stations for wireless messages, 3-980-81

service to man, 11-4095

story about, The discontented fir-tree, 15-5323-25

tallest in the world, 9-3262

tree surgery, directions for, 10-3626

* uses of, 12-4378, 4245

to make paper, 3-1052

See also Forests and forestry; Lumber and lumbering; Shrubs

Poems about

Planting the Apple Tree, by W. C. Bryant, 18-6648

Trees, by Joyce Kilmer, 12-4271

Woodman, Spare that Tree, 1-326

Questions about

Does the earth try to pull a tree down? 2-687
Is mistletoe harmful to the trees on which it grows? 8-2872

Is there any way of finding out the ages of trees? 10-3475

What happens when a leaf falls from a tree? 13-4595

What is the growth found on many oak trees? 10-3580

Why do some trees flower and others not? 8-2720

Why do the branches of trees grow sideways? 5-1607

Why do trees have coats of tough bark? 16-5962

Why do trees not die in winter like flowers? 10-3580

Why does a tree grow straight, as a rule? 16-5744, 5746

Trees—Questions about (continued)

Why does a tree grow upward? 1-78

Why does a tree stop growing? 9-3356

Pictures (in tint), 11-4097-4108; 12-4251-60, 4385-96

big trees (sequoias), 9-3267

in summer, 12-4507-16

in winter, 13-4634-43

roots of the rubber tree, 4-1407

showing root system, 3-874

See also names of trees

Trefoil, Bird's-foot, 14-4974-75

Pictures, 14-4975; (in color), 14-4994

Trench, Herbert, see Poetry Index, for poem and note

Trench-digging, game, 17-6257-58

Trench-fever, caused by lice, 18-6733

Trent. Old Italian town on the Adige, with a Romanesque cathedral and many handsome buildings. It manufactures silk, pottery and sugar, and has a brisk transit trade.

Trent, ship, and Mason and Slidell, 7-2434

Trent, Council of, 1545 to 1563. Controlled by Italians and Spaniards, it fixed the Roman Catholic creeds and condemned the Reformation. Its decrees are called Tridentine decrees, from the Latin name of Trent.

Trent Canal, Canada

note and picture, 11-3780

Trentino, Austrian and Italian control, 12-4412; 18-6458

Trenton. Capital of New Jersey, at the tidal head of the Delaware River. Pottery and wire are leading products and there are other important industries.

note and picture, 11-3780

Trenton, Battle of, December 26, 1776. Washington with about 2,500 men crossed the Delaware and defeated the Hessians (about 1,500), during the Revolutionary War.

Trepang, definition of, 9-3296

Trespassing, law about, 14-4916

Trestletrees of a ship, 14-5004

Trevelyan, Sir George, author, 11-4003

Picture, portrait, 11-3999

Treves, or Trier. Ancient German city in Rhinish Prussia, on the Moselle. Here are remarkable Roman remains, including an amphitheatre to seat 30,000 spectators. The 11th-century cathedral is one of the most interesting in Europe.

Picture, Porta Negra, Roman gateway (graveure), 12-4178

Trevithick, Richard, English inventor

improvements on steam-engine, 5-1612

Picture, first engine to run on a road, 5-1615

Triangle. A geometrical figure made up of three lines which meet two by two in three points called vertices; any three-cornered figure or arrangement.

Triassic period, geology, see Geology—Triassic period

Tribunes, Roman magistrates, 4-1193

Triceratops, prehistoric animal, 5-1660

Trichinosis, disease, caused by worms, 19-7147

Tricks

ball that answers questions, 2-623

boiling water in paper, 2-623

book, finding word by figures, 2-753

brick, blowing over, 3-1025

card

guessing numbers, 18-6784

how to identify a card, 7-2513

robbers and the soldiers, 7-2518

telling a card by touching it, 13-4735

thought-reading, 6-2044-45

chair that comes to you, 7-2651

coin

being generous, 13-4846

borrowing penny, 16-5978

coin and the handkerchief, 11-4080

disappearing penny, 6-2047; 14-5202

disappearing quarter, 5-1775

making penny appear to rise, 2-622

moving penny without touching it, 18-6641

mysterious paper purse, 7-2652

selecting marked penny, 16-5978

wandering coin, 4-1397

wizard's pocket-handkerchief, 7-2382

cutting the magic string, 1-344

disguising the voice, 17-6391

domino, 12-4498

drawing trick, 17-6391

drinking water without removing hat, 16-5978

GENERAL INDEX

Tricks (continued)

- fairy-fountain experiment, 2-627
 floating a needle, 2-623
 fountain in a jar, 17-6391
 guessing size of cards, 7-2647
 How high is the hat? 18-6642
 imp with a disappearing head, 10-3508
 ink-and-water trick, 14-5116
 leg trick, 17-6391
 living marionette, 5-1769-70
 magic knot, 4-1395
 magic scissors (Afghan bands), 3-1025
 magic writing, 19-6964
 magician's jacket, 4-1285
 marvelous egg, 13-4850
 money-making, 3-901
 mysterious cubes, 17-6391
 mysterious paper purse, 7-2652
 nuts, trick with, 15-5595
 passing through postcard, 10-3771
 pillars of Solomon, 9-3377
 ring-and-coin, 3-1154
 seeing through a brick, 12-4377
 self-suspending wand, 10-3507
 stick, pulling one through another, 3-1030
 telegraphing thought, 2-518
 tying two persons together, 13-4738
 vanishing pillar, 5-1772
 water tricks, 2-622-25
 whirlpool in a tumbler, 18-6642
 with matches, 10-3767-68
 wizard of Wabasha, 15-5509
 wizard's wand and purse, 9-3380
 For list, see 20-7643-44
- Trieste.** Most important Adriatic port of Italy, with a fine harbor and extensive shipbuilding, manufacturing and engineering industries. It has an ancient Byzantine cathedral and an open-air museum of Roman antiquities.
- Trifolium,** name for crimson clover, 7-2412
- Triggerfish,** and oysters, 19-6885, 6888
Picture (in color), 16-5788
- Trigonometry,** use in measuring land, 16-5742
- Trillium,** flower
 account of, 17-6276
 on Pacific coast, 19-6927
Pictures, 17-6272; 19-6933
- Trilobites,** crustaceans
 description, 3-906
 in Silurian period, 3-1031
Picture, in Silurian period, 3-1033
- Trinidad,** British possession, 9-3190; 19-7103
 government, 19-7104
- Trinity River.** American river, rising in northern Texas; flows into Galveston Bay; 530 miles.
- Triple Alliance.** A defensive alliance formed in 1882 between Germany, Austria-Hungary and Italy for a term of five years. It was renewed at five-year intervals until 1902, when it was extended for twelve years more. In 1914 Italy refused to join Germany and Austria, and in 1915 she withdrew from the Alliance. It was suggested by Bismarck as a check upon Russia and France.
- Triple Entente.** A diplomatic group made up of Russia, France and Great Britain, held together loosely by a number of agreements or understandings but not bound by a hard-and-fast treaty. This grouping followed the formation of the Triple Alliance.
- Tripoli,** pirates defeated by U. S. navy, 17-6028
- Tripolitania.** Part of the Italian North African colony of Libya; area, 350,000 square miles; capital, Tripoli. The coastal regions are fertile and produce dates, olives, figs, cereals and esparto grass, but except for oases the interior is arid and barren.
- Tiremes,** ancient ships, 11-3912-14
- Tristan da Cunha,** group of islands, 9-3190
- Tristram of Lyonesse,** story of, 7-2460-61
- Triton,** a demigod, 9-3235
- Triton,** moon of Neptune, 10-3412
- Tritons,** molluscs
 shells used as trumpets, 19-6892
- Triumvirate.** In Roman history the government of the country by three equally powerful men. There were two periods of three-man government in Rome: the first that of Pompey, Crassus and Caesar; the second, Octavius, Antonius and Lepidus.
- Trogons,** birds, 9-3370; 14-5022
Pictures, 9-3366
 Duvaucel's trogon (in color), 12-4369
- Trojan War,** story in brief, 3-1070
 stories of Iliad and Odyssey, 6-1983-86
- Trolling.** A kind of fishing in which the bait is kept moving. The fisherman may be in a moving boat or he may walk along the shore keeping his line moving in the stream. Live bait, such as frogs or minnows, may be used, but many people prefer the revolving spoon with feathers and hooks attached.
- Trollope, Anthony,** novelist, 11-3896
Picture, portrait, 11-3891
- Trondhjem.** Ancient Norwegian cathedral city, exporting copper, oil and timber.
Picture, cathedral, 15-5299
- Tropic birds**
 * account of, 11-3885
Picture, guarding egg, 11-3883
- Tropic,** in geography, either one of the two parallels of latitude that bound the torrid zone. The Tropic of Cancer, about 23½ degrees north of the Equator, is the circle over which the sun is vertical when it has reached the most northern position in its yearly path, our summer solstice. The Tropic of Capricorn, about 23½ degrees south of the Equator, is the circle over which the sun is vertical upon reaching its most southern position, our winter solstice.
- Tropics,** central zone of earth
 characteristics, 6-2171
 temperature remains same, 8-2792
- Trossachs.** Beautiful wooded district lying between Loch Achray and Loch Katrine in Perthshire, and dominated by Ben A'an and Ben Venue.
- Trotter, Bernard Freeman,** Canadian poet, 14-5109
See also Poetry Index, for poem and note.
- Trotsky, Lev Davidovich.** Born, 1879. Soviet leader sent to Siberia, 1898; escaped, 1902. Had a career as an agitator in many countries, and returned to Russia after the February revolution, 1917. He organized the Red Army, and with Lenin became head of the Soviet Government. After Lenin's death his power began to wane.
- Troubadours.** Minstrels or singing poets of southern France in the Middle Ages. Those of northern France were the trouvères.
See also 16-5827-30; 19-6901
- Troupials,** of oriole family, 8-2970
- Trout**
 account of, and varieties, 15-5636-37
 hatchery, West Virginia, 11-4059
 sea trout, name for weakfish, 16-5780
Pictures, 15-5631
 showing life-history of, 15-5633
- Trouville.** Fashionable seaside resort in Normandy, France. Close by is Deauville.
- Trowbridge, John Townsend,** *see Poetry Index for poem and note*
- Troy,** ancient city
 Schliemann's explorations in ruins, 2-447
 in legends and poems
 Æneas' escape to Italy, legend, 4-1192
 siege of, in Iliad, 6-1983-84
 wooden horse, story in Æneid, 6-1988
- Troy, N. Y.,** Emma Willard School, 14-5268
- Troy weight.** In the 14th century the pound (12 ounces) of the city of Troyes, France, was adopted in England. Later the troy measure ment, as the name Troyes came to be spelled and called, was confined to the weighing of gold and silver and other valuable commodities.
- Troyes.** Ancient city of Champagne, France, on the Seine. It has a 13th-century cathedral and manufactures hosiery.
- Troyon, Constant,** French painter, 7-2370
Picture. Oxen Going out to Plow (gravure), 7-2376
- Truck of a ship,** 14-5004
- Trudeau, Edward Livingstone,** physician, life and work, 1-229-30
- Truffles,** a variety of mushroom, 11-3906
 grow around holm oaks, 12-1379
- Trumbull, John.** American painter, 9-3328
Pictures
 Declaration of Independence before Congress, 4-1167
 Portrait of Alexander Hamilton, 9-3328
- Trumpet-weed,** name for Joe-Pye-weed, 14-5159
Picture, 14-5159
- Trumpeter swan,** 11-3885

GENERAL INDEX

Trumpeters, birds of South America, 11-4010

Picture, 11-4005

Trumpeters, pigeons, 12-4285

Trumpets, plants, 19-7090, 7092

Picture, yellow trumpets, 19-7093

"Trust in God and keep your powder dry," when said, 6-1976

Trustee. A person who holds and manages property or funds for the benefit of another and who, if legally appointed, is held accountable by law for the money or property in his care.

Truth, quotation about, by Kapteyn, 9-3040

Tryon, Dwight W., American painter, 10-3449

Picture. Spring Morning (gravure), 10-3458

Tsai Lun, invented paper, 10-3550

Tschaikowsky, Peter, Russian musical composer

* life and work, 19-6923-24, 7152

Picture, portrait, 19-6912

Tserclaes, Johann, *see* Tilly, Count of

Tsetse-flies

account of, 17-6422

cause death, 2-471

do not affect zebra, 6-2018

Picture, 18-6733

Tsetse-fly disease, discovery of cause, 15-5492

Tsingtau. Chinese port, capital of Kiaochow territory, and formerly a German fortress.

Tsushima, Battle of. Great naval victory of the Japanese under Togo over a superior Russian fleet, in the Russo-Japanese War, in 1905. The efficiency and superior tactics of the Japanese enabled them to annihilate the Russians.

Tu quoque. Latin for 'thou too'; term used for a personal retort, as when a man is called a liar, and promptly replies: "You're another."

Tuatara, lizard, 14-5230

Picture, 14-5231

Tuberculosis

and alcohol, 8-2681

cause and cure, 2-558-59

control in N. Y. city, 15-5622

danger from spitting, 6-2125

spread by milk, 7-2326

Picture, treatment for, in N. Y. city, 15-5626

Tubfish. *Picture* (in color), 16-5781

Tucson, Arizona

Picture. Mission of San Xavier del Boca, 18-6427

Tuesday, how named, 12-4201

consecrated to Mars, 9-3227

Tug boats, value and services, 17-6406-07

Picture, 17-6407

Tug of war, game, 6-2181; 17-6257-58

Tugalo Dam, Georgia, note and picture, 15-5428

Tui, bird, 9-3138

Tuileries, palace in Paris, 18-6495

destroyed under Commune, 10-576

Take, Sir Brian, first English postmaster-general, 8-2653

Tukulti-Adar I, king of Assyria, 2-654

Tula, Russia, 16-5858

Tulip, flower, description, 19-7172

Pictures. different varieties (gravure), 19-7174-75, 7178

Tulip trees

account of, 12-4510, 4513

Pictures, 12-4513

blossom and leaf, 12-4515

Tullin, Christian, Norwegian poet, 19-7011

Tumblebug, description, 18-6628

Tumblers, variety of pigeon, 12-4284

Tumerol, oil obtained from curcuma plant, 8-2996

Tuna, fish, 16-5775

Tundra

description, 6-2170

vegetation of, 4-1280

Tungsten, metal used in electric lamps, 16-5938

Tuning-fork

Question about. Why does a tuning-fork sound louder when it touches wood? 14-4952

Tunis or Tunisia, French possession, 11-3824

description, 18-6810

history of, 18-6806, 6808

Picture, 18-6738

Tunkhannock Viaduct, note and picture, 1-33

Tunnels

Brunel's invention for construction of,

5-1618; 19-7206

for N. Y. water supply, 14-5056, 5058, 5060

in Swiss Alps, 16-6008

Picture, Shandaken tunnel, 14-5054

Tunny, *see* Tuna

Tupaias, animals, 1-320

Tupper, Sir Charles, premier of Canada, 4-1431

Turacin, pigment of turaco, 10-3502

Turacos, or **Turakoos**, birds, 10-3501-02

Pictures, 10-3495

Livingstone's turaco (in color), 12-4370

Turbines

explanation, 15-5429-30

steam turbine, use on ship, 17-6404

Pictures

on ship, 17-6405

power house, New York, 16-5806

Turbot, fish

life-history, with pictures, 16-5772

eggs, number of, 15-5542

Picture (in color), 16-5783

Turgenev, Ivan, Russian novelist, 19-6909-10

Picture, portrait, 19-6905

Turin. One of the chief industrial cities of northern Italy, with extensive motor-car, textile, paper, pottery and hardware manufactures. Formerly capital of Piedmont, it is one of the finest modern cities of Italy; it has a cathedral, a university and several beautiful churches. industries, 13-4576

motor-car works in, 13-4572

Turkestan. Great stretch of Central Asia lying north of the Hindu Kush and the Kwen Lun. Western, or Russian, Turkestan is an immense region of over 500,000 square miles, with vast steppes and deserts interspersed with fertile oases and irrigated lands. Agriculture and cattle-raising are the main occupations of the nomadic Turkomans; but cotton, silk, woolen and linen goods, and carpets are manufactured in the towns, including Tashkent, Bokhara, Khiva and Khokand. Samarkand was the capital of the Tartar conqueror Tamerlane in the 14th century. Eastern Turkestan, or Sinkiang, a dependency of China, is almost unknown except for the trade centres of Ili, Yarkand and Kashgar.

surface of, 16-5852; 18-6584

Chinese, 18-6588, 6590

Turkey

cities, 13-4806

governing power poor, 13-4802

history

* Rise and fall of Turkey, 13-4797-4806

history in Europe, 18-6462

and Bulgaria, 14-4922, 4926

attacks repelled by Hungary, 17-6194

Balkan wars from 1912 on, 14-4926

since World War, 18-6462

war with Greece, 1921-23, 14-4918

See also Crusades; Turks

loss of European territory, 13-4802, 4804

map, 13-4808

resources, 13-4806

territory, extent of, in 1700, 13-4802

territory, present borders, 13-4806

Pictures, 13-4805-10

Turkey buzzards, 10-3760

Turkeys, birds, 12-4368

brush turkeys of Australia, 12-4368

native of America, 1-159; 14-5020

Pictures, 12-4362, 4367

Turkish delight, candy, recipe, 11-3856

Turkomans. A Turki race of nomadic habits who inhabit the uplands and steppes of western Turkestan. They are remarkable for their keen, penetrating glance, and before their conquest by Russia were ceaseless raiders.

Turks. The western section of the Northern Mongolic people. They include the Yakuts, Kirghiz, Uzbeks, Turkomans, Anatolians, Tartars and Osmanli. Their contact with the Caucasian type has modified the typical Mongol features in these races. They are nearly all Moslems.

attack on Byzantine Empire, by Ottoman

Turks, 13-4798

conquered Persia, 3-918

ill-treated pilgrims to Palestine, Middle Ages,

7-2583-84

of Mongol stock, 18-6588

Turmeric, account of, 8-2996

Turner, Charles, painter

Picture. Portrait of J. M. W. Turner, 7-2336

Turner, Charles Tennyson, *see* Poetry Index for poem and note

Turner, Charles Yardley, American painter, 10-3453

GENERAL INDEX

- Turner, Mrs. Elizabeth**, *see* Poetry Index for poems and notes
- Turner, Joseph**, wrote Roll on, Silver Moon, 18-6510
- Turner, Joseph Mallard William**, English painter art and influence, 6-2234-35
life, 7-2335-36
Pictures
 portrait, 7-2327
 portrait, by Charles Turner, 7-2336
 Chichester Canal, 6-2229
 Fighting Téméraire, 6-2233
 Hindu Devotions, 6-2233
 Venice, 9-3069
- Turnips**, 7-2624
 as fodder plant, 7-2412
 Picture, 7-2621
- Turnpikes**, game, 12-4496
- Turnstones**, birds, 11-4012
- Turpentine**, account of, 9-3151
- Turquoise**, account of, 19-7229
 Picture (in color), facing 19-7225
- Turtle**, account of, 14-5234-35
 Picture, 14-5235
- Turtledoves**, 12-4288; 14-5020-21, 5144
 Pictures, 12-4287; (in color), 8-2897
- Turtleheads**, plants
 description, 16-5732
 high-mountain turtlehead, description, 19-7088
 note on, 16-5730
 Pictures, 16-5730
 high-mountain turtleheads, 19-7087
- Tuscany**. Former Italian grand-duchy, containing Florence, Pisa, Leghorn, Siena, Pistoia and Lucca. In the fourteenth century Dante, Giotto, Petrarch and Boccaccio made Tuscany foremost in the revival of arts and letters. The Tuscan dialect became the literary language of Italy. Because of dissensions in Florence the Medici obtained supreme power, and were in alliance with Spain. For nearly 200 years Tuscany was under Spanish influence. After several changes, the people voted for union with Italy.
- Tuscarora Indians**
 joined Five Nations, 1-165
 wars with colonists in North Carolina, 2-554
- Tustala**, name for Robert Louis Stevenson, 10-3737
- Tuskegee Institute**, Ala., 14-4890
- Tuskshells**, molluscs, 19-6889
- Tutankhamen**, king of Egypt, 3-818
 tomb of, 11-3874
- Tutsan**, plant
 Pictures (in color)
 flower, 14-4988
 fruit, 11-4024
- Twachtman, John H.**, American painter, 10-3456
 Picture. Snow (gravure), 10-3459
- Twain, Mark**, *see* Clemens, S. L.
- Tweed, William Marcy** (1823-78). A Democratic politician and a notorious Tammany boss in New York. At the head of a group of politicians called the Tweed Ring, he robbed the city of millions of dollars. He was caught, tried, and sentenced to jail; he escaped and fled to Spain, but was returned to New York, where he died in jail.
- Tweed**. River forming part of the boundary between England and Scotland. Rising in Clyde Law, it flows into the North Sea near Berwick, and has a famous woolen industry.
- Twelfth Night**, by Shakespeare
 story of, 8-2692
 Picture, 3-987
- Twelve Tables**. The oldest code of Roman law, engraved on copper or wooden plates and set up in the Forum in 451 and 459 B.C. The Tables form the basis of the system of Roman law.
- Twin Falls**, Idaho. 180 feet high.
- Twin-flower**, description, 18-6568
 on Pacific coast, 19-6939
 Picture (in color), 14-4987
- Twisted stalk**, flower, 17-6280
- Twites**, birds, 8-2972
 Picture, nest and eggs, 8-2971
 Picture (in color), 8-2900
- Two American pioneers**, * 6-2189-97
- Two men who loved the Indians**, * 18-6631-36
- Two pioneer women**, * 16-5699-5706
- Two spies of the Revolution**, * 11-3995-97
- Two Years before the Mast**, by R. H. Dana
 * quotations and summary, 9-3357-64
- Twopeny, William**, English artist, 2-443-45
 Pictures, drawings, English architecture, 2-444-45
- Tyler, John**, president of U. S.
 administration, 6-1916; 11-3940
 life, outline of, 11-3952
 Picture, portrait (gravure), 11-3946
- Tyler, Wat**, and peasant revolt, 5-1683
- Tympanum**, part of ear, 9-3306, 3308
- Tyndale, William**, life, 1-306
 translation of Bible, 2-473
 Picture, translating New Testament, 1-303
- Tyndall, John**, scientist
 * life and work, 2-595-96
 as an author, 11-4002
 Picture, portrait, 2-589
- Types**, in printing
 history of, 9-3388-89
 Question about. What is the type known as Braille? 15-5364
- Typesetting**
 * Men who gave us printing, 9-3382-87
 by linotype, 3-1056, 1060-62
 by monotype, 3-1064
 Pictures
 linotype, with details, 3-1060-62
 monotype machine, 3-1064
- Typewriter**, invention of, 19-7214
- Typhoid fever**, microbes killed by white blood-cells, 3-934
- Typhoon**, *see* Hurricane
- Tyr**, Norse god of war
 and Fenris the wolf, 12-4201
- Tyrant birds**, 9-3286
 Picture, 9-3277
- Tyrol**. Alpine region divided between Italy and Austria; the Austrian Tyrol lies in the valley of the Inn, north of the Brenner Pass; the Italian Tyrol is in the basin of the Adige and the Brenta, and south of the Brenner. Celebrated for its beauty, the Tyrol contains the Dolomites and Ortler Alps, with Ortler Spitz, 12,875 feet. Innsbruck in Austria and Trent, Bolzano and Merano in Italy are its chief towns.
 union with Austria, 17-6192
 and Andreas Hofer, 13-4588
 Picture, earth pillars, 6-2074
- Tyrrhenian Sea**. Part of the Mediterranean lying between Italy, Sicily, Sardinia and Corsica.



U-boats, *see* Submarine boats

Udall, Nicholas

author of Ralph Roister Doister, 2-721

Uganda. British protectorate in equatorial Africa; area, 110,000 square miles; capital, Entebbe. Occupied in 1890, it has rapidly increased in prosperity, there being excellent internal communication by steamers on Lakes Victoria, Albert and Kioga. The natives are engaged in cattle-raising and growing cotton, millet and sweet potatoes; British planters grow coffee and rubber. The chief trading centre is Kampala.
 description of, 9-3054; 18-6809

Uganda Railway, Africa

 lions hindered building, 2-194

Uhland, Ludwig, German poet, 17-6271

See also Poetry Index for poem and note

Uintatheres, prehistoric animals, 5-1784

Ukraine, or The Ukraine. South Russian soviet republic, dependent on the Moscow government. It is famous for the rich black soil of its wheat-growing districts, and contains the cities of Kharkov, Kiev and Odessa.

Ulm. Old German city on the Danube, with a famous cathedral. After that of Cologne, this is the largest in Germany, and has a spire 536 feet high, the tallest in the world.

 battle at, 6-2204

Picture, cathedral (gravure), 17-6167

Ulpian, Roman lawyer

 definition of justice, 13-4812

Ulster. Irish northern province, comprising six counties in Northern Ireland adhering to England and three in the Irish Free State; area, 8,613 square miles.

 objected to Home Rule, 8-2958, 2940

GENERAL INDEX

Ulster (continued)

Scotch and English settlement, 6-1974
 Scotch settlement, under James I, 8-2934
Ultima thule. Latin for "the farthest boundary."

Ultimo. Latin for "last"; usually written: ult.
Ulysses, Greek hero
 adventures, as told in Odyssey, 6-1984-86
 dog of, Argus, 1-146
Poem about. Ulysses, by Tennyson, 18-6798

Umbrella bird, 9-3286

Umbrella plant, 18-6658, 6660

Umbrellas, how to dry, 19-7079

how to mend, 13-4737

Umbrian school, Italian painting, 3-959

Umbrians, tribe of Italy, settlement, 4-1191

Umpire, definition of, 6-2250

Unau, two-toed sloth, 7-2394

Picture, 7-2395

Uncle Remus stories, how written, 13-4816

Uncle Sam

Question about. Why is the U. S. often called

"Uncle Sam"? 9-3354

Uncle Tom's Cabin, influence on slavery ques-

tion, 7-2429

Undine, story, in brief form, 11-4141

Ungava, district of Canada, 4-1490; 7-2557-58

Unicorn, imaginary animal

legend about, 1-353-54

Picture, 1-354

Unicorn, Sea, superstition about, 6-2218

Unicorn fish, description, 16-5899-5900

Unicorn sheep, 4-1376-77

Union, Act of, 1800. In British history, the act

uniting Ireland to Great Britain. It came into

operation in 1801.

Union, The, 1707. In British history, the union

of England and Wales with Scotland by treaty

as the United Kingdom of Great Britain; ratified

on May 1.

Union Islands

population, and nation ruling, 9-3188

Union Jack, flag

Poem about. Colors of the Flag, by F. G. Scott,

10-3482

Union of South Africa, see South Africa—Union

Union of Soviet Republics, see Russia

Union Pacific Railroad, first to cross continent,

18-6432

United Empire Loyalists, 3-944

contributions to Canada, 14-5104

United Kingdom of Great Britain and Ireland

countries included, 18-6557

See also England

United Nation, * 8-2669-80; 9-3207-20

United Provinces. Indian provinces of Agra and

Oudh; area, 107,000 square miles; capital, Alla-

habad. Vast crops are grown in the rich plain

of the Ganges, and here are many of the great-

est Indian cities.

United States. Most important republic in the

world, covering over 3,000,000 square miles in

North America. With Alaska it is almost as

big as Europe. Between the Appalachians in the

east and the Rocky Mountains in the west is the

huge plain of the Mississippi, the richest

agricultural district in the world, occupying

more than half the country; and here enormous

crops of grain are grown and vast numbers of

cattle pastured. In the southeast, from Texas

to Virginia, is the great cotton belt, producing

three-fifths of the world's supply of cotton, be-

sides tobacco, sweet potatoes, rice and maize.

California and other states have an immense

production of fruit. Of the minerals the most

important are coal and iron, which are found in

many states. Gold, silver, copper, lead and

zinc are mined in many parts of the west, while

the petroleum production of the South Central

and Western States is enormous. Manufactur-

ing, however, is by far the most valuable in-

dustry. The iron, steel, leather, motor-car,

canning and textile industries are all very im-

portant. Commerce is served by over 260,000

miles of railways. Politically the United

States consists of a union of 48 states, with the

territories of Alaska and Hawaii. Other de-

pendencies or possessions are the Canal Zone,

Philippine Islands, Porto Rico, Guam, Virgin Is-

lands, etc. Washington, the capital, stands in the

Federal District of Columbia. The commercial

metropolis and by far the largest city is New

York; next come Chicago, Philadelphia and De-

United States (continued)

troit. In the next group St. Louis, Cleveland, Boston, Baltimore, Pittsburgh, Los Angeles, Buffalo, San Francisco, Washington and Milwaukee all have over half a million inhabitants, and 19 other cities have between 500,000 and 200,000. The chief ports are Boston, New York, Baltimore, Norfolk, Newport News, Charleston, Savannah, New Orleans, Galveston, San Francisco and Seattle. The population in 1820 was under 10,000,000; in 1920 it was over 105,000,000 and it is still increasing.

agriculture

area of productive land, 10-3398

crops compared with other countries, 10-3398

farm home in Middle West, description,

15-5284

machinery cause of great production, 10-3398

North Central states, 15-5274-84

Northeastern states, 10-3404-08

Southern states, 13-4520-24

Western states, 18-6422-34; 19-6846, 6848

See also Agriculture—United States

Agriculture, Department of, 5-1792

area, 8-2676

army, use of flags, 19-7184

See also West Point

art, later than that of Europe, 10-3399

See also Painting, American; Sculpture, American

Cabinet, 5-1790, 1792

canals, 13-4787

* Erie Canal, 13-4881-88

Capitol, see Washington, D. C.

census, 1920, facts from, 8-2676

cities

in 1783, 5-1698

of Northeastern states, 11-3782

on Great Lakes, 17-6044, 6046

See also names of cities; as, Chicago,

New York

climate, variety of, 8-2678

Northeastern states, 12-4148, 4150

colonial history, see United States—history—

colonial period

colonies, see United States—foreign possessions

Commerce and Labor, Department of, 5-1792

compared with other countries, 10-3397-99

Congress

powers under Articles of Confederation,

1777-87, 5-1696-97

in U. S. Constitution, 5-1788-89

Pictures, Senate and House of Representa-

tives, 5-1786

* Constitution, 5-1788-93

framing and adoption, 5-1696-98; 20-7558-62

amendments, 5-1792-93; 20-7574

text of Constitution and amendments, with

notes, 20-7563

courts, 5-1792

description

* North Central states, 15-5273-84; 17-6037-48

* Northeastern states, 10-3401-08; 11-3773-82;

12-4145-52

* Southern states, 13-4517-28; 14-4889-4900

* Western states, 18-6425-36; 19-6841-50

historic places, 18-6825-39

For list of main articles, see 20-7583

education, 9-3220

* colleges and universities, 12-4307-10

colonial period, 3-966, 970

Horace Mann's influence, 14-5254

of girls, before modern era, 14-5268

Southern states, 14-4890

See also Annapolis; West Point

* flags, history and use, 19-7182-92

state flags, 19-7184, 7190-91

Pictures (in color), 19-7189-92

foreign possessions and protectorates

* American territory across the seas,

10-3583-96

Haitian and Dominican republics, 19-7101

list of, 10-3583

West Indies islands formerly Danish, 19-7104

foreign relations

with Cuba, 10-3590, 3592

with France, under Washington and Adams

5-1702

with Mexico, 19-7140

forestry

* Forest Service, 8-2804-12

conservation of forests, 8-2804

Division of Forestry created, 8-2803-04

GENERAL INDEX

United States—forestry (continued)

- grazing in national forests, 8-2804, 2806, 2808, 2811
- national forests, area, 8-2810
- Pictures*, of Forest Service, 8-2803-12
- * frontier, history of, 6-1905-10, 2189-91
- * government, 5-1787-93
 - Articles of Confederation, 5-1696-97
 - executive branch, 5-1789-90
 - first legislature in America at Jamestown, 1619, 2-546
- Senate, election by people, 5-1793
- * historic spots, 18-6825-39
- history (arranged chronologically, so far as possible)
 - colonial period, and earlier
 - * explorers of North America, 1-241-54
 - * settlements, 13 colonies, 2-543-55
 - * child life, colonial, 3-965-76
 - fire prevention in early period, 9-3158-59
 - postal service, first one, 8-2653
 - restrictions on trade and manufacture, 4-1158-59
 - songs and singing, 18-6509
- See also* French and Indian wars
- * Revolution, 4-1157-74
 - French Revolution and United States, 5-1700, 1702
 - social conditions in 1783, 5-1698, 1700
 - Articles of Confederation, 5-1696-97
- * Administrations of the Presidents, Washington to Coolidge, 11-3937-50
- * Building the new nation from 1781 to 1815, 5-1695-1707
 - War of 1812, 5-1704-06; 3-945
 - brief summary of, 11-3938
 - causes, 5-1703-04
 - in Canadian history, 3-945
 - naval battles, 5-1704; 17-6329-32
- * Western extension of territory, 6-1905-24, 2189-91
 - Louisiana Purchase, 5-1702-03
 - Mexican War, 6-1918-20
 - Oregon territory, 6-1918
- * Civil War, 7-2427-44
 - causes, friction between states, 7-2427-29
 - navy created, 7-2433-34
 - beginning of navy, 11-3918
- * President Grant to President Coolidge, 8-2669-74
 - reconstruction in South, after Civil War, 7-2444
- Spanish-American War, 10-3590
- Poems about*
 - The Blue and the Gray, by F. M. Finch, 10-3643
 - Independence Bell, 15-5648
 - Little Giffen, by F. O. Ticknor, 6-2242
 - Paul Revere's Ride, by H. W. Longfellow, 15-5649
 - Sheridan's Ride, by T. B. Reed, 19-6868
 - Song of Marion's Men, by W. C. Bryant, 11-4032
- For list of main articles on U. S. history, *see* 20-7584
- Pictures*, U. S. history, 5-1695, 1699, 1701, 1707
 - historic shrines, 18-6825-39
 - colonial period, 2-542-56; interiors, 3-967
 - about Civil War, 7-2426-43
- See also* Revolution, American—*Pictures*, and all starred articles
- Immigration, *see* Immigration—United States
- Indian Affairs, Bureau of, 19-7236, 7238
- industries
 - in 1783, 5-1698, 1700
- * connected with animal and mineral products, 9-3207-12
 - coal production, 3-790
 - iron production, 6-1926, 1928
 - in North Central states, 15-5273
 - in Northeastern states, 11-3774-82
 - in Southern states, 13-4520-26; 14-4889-90
 - miscellaneous, 9-3216, 3218
 - tea industry, 2-760, 762
- See also* United States—agriculture
- Interior, Department of, 5-1792
- irrigation projects, 7-2546
- Jewish population, 19-7164, 7167
- Labor, Department of, 5-1792
- literature, *see* American literature
- manufacturers, *see* name of industry
- navy
- * Naval heroes of young America, 17-6325-32

United States—navy (continued)

- * Ships and sailors of our navy, 18-6815-24
 - during Civil War, 7-2433-34
 - See also* Annapolis
 - need for improvement, 9-3220
 - painting, *see* Painting, American
 - political parties, first formation, 5-1702
 - population and growth, 5-1605
 - in 1783, 5-1698
 - in 1812, 5-1704
 - in 1920, 8-2676
 - * postal service, 8-2654-58
 - in 1795, 8-2653
 - in West, pioneer period, 18-6432
 - presidents
 - * administrations, Washington to Coolidge, 11-3937-50
 - native states and residences, 8-2676
 - powers and duties, 5-1789-90
 - vice-presidents who became president, 8-2674
 - wives of presidents, 2-391-96
 - Pictures* (gravure), 11-3945-48
 - See also* names of Presidents
 - public lands and settlers, 9-3218
 - races in, 9-3218, 3219
 - railroads, *see* Railroads—in United States
 - resources
 - See* Plant Life, 20-7599-7601
 - For list of main articles, *see* 20-7585
 - sculpture, *see* Sculpture, American
 - slavery introduced, 2-546
 - * song-writers, 18-6509-15
 - songs, patriotic
 - authors of, 18-6512-14
 - Battle-Hymn of the Republic, 17-6251
 - Columbia, the Gem of the Ocean, 17-6250
 - Hail Columbia, 5-1645
 - My Country, 'tis of thee, 17-6251
 - Star-Spangled Banner, 17-6249
 - Yankee Doodle, 17-6250
 - state flowers, list of, 17-6181
 - Supreme Court, 5-1792
 - taxes, 13-4553
 - water power, *see* Water power—in countries and continents—United States
 - Weather Bureau, 5-1792
 - See also* North Central states; Northeastern states; Southern states; Western states; *also* names of states
 - Question about*. Why is the U. S. often called Uncle Sam? 9-3354
 - Pictures*. All starred articles are illustrated.
 - See also* subjects, as Iron, etc.
- United States**, ship
victory over Macedonian, 5-1704
- United States House of Representatives**, *see* United States—Congress
- United States Military Academy**, *see* West Point
- United States Naval Academy**, Annapolis, *see* Annapolis
- United States Navy**
- * Ships and sailors of our navy, 18-6815-24
 - United States of America**, * 10-3397-3400
 - United States Senate**, *see* United States—Congress
- Univalves**, class of molluscs, 19-6884
- Universal language**, *see* Language, Universal
- Universe**, 9-3033-40
- * in astronomy, 11-4037-42
- "University Wits"**, name for Shakespearean dramatists, 2-722
- Unleavened bread**, 1-371-72
- Untermeyer, Louis**, *see* Poetry Index for poem and note
- Upholstery** of furniture, directions, 12-4373
- Upjohn, Richard**, American architect
designed Trinity Church, New York, 18-6681
- Upjohn, Richard Michell**, American architect,
son of Richard Upjohn, 18-6681
- Picture*, State Capitol, Hartford, Conn., 18-6683
- Upper Canada** (now Ontario)
history, 1791-1840, 3-944-46
joined to Lower Canada in 1840, 4-1484
- See also* Ontario
- Upsala**. Historic Swedish city, being the seat of an ancient university and the only archbishopric. Here are Gustavus Vasa's castle and burial mounds of ancient Swedish kings.
- Upsall Castle**, England, legend about, 17-6324
- Ur**. A very ancient city of the Chaldeans, sacred to the moon god.
oldest temple on earth, 14-5208
- Ur Svensta Hjertans**, by Strandberg, 17-6253

GENERAL INDEX

Ural Mts. Mountain range which runs north and south for 1,600 miles between European Russia and Siberia. Platinum, gold, silver, iron, coal, salt and precious stones are found in it, its output of platinum being very important. Tollpozis, 5,500 feet, is its highest summit.

Ural River. Russian river rising in the Ural Mountains and flowing into the Caspian. Orenburg is the only city it passes, it being generally too shallow for navigation, 1,400 miles.

Urania, muse of astronomy, 9-3228

Uranus, planet

* account of, 10-3412, 3414

discovered by Herschel, 1-284

distance from earth, measured by speed of train, 9-3034

distance from sun and length of year, 9-3180

Urban II, Pope, and first Crusade, 7-2584

Picture, rousing the people for the Crusade, 7-2584

Urban the Good, and Valerian, 6-1998

Urbino. Picturesque old city of central Italy, the birthplace of Raphael. It has a cathedral, a university and a magnificent ducal palace.

Urial, wild sheep, 4-1375

Ursa Major, see Great Bear

Ursula, St., story of, 6-1992-94

Picture, Death of St. Ursula, 6-1993

Uruguay. Smallest South American republic; area, 72,000 square miles; capital, Montevideo. Its characteristics are very similar to those of Argentina, the interior being mainly a treeless, grassy prairie, which provides pasture for vast numbers of cattle. Hides, skins and meat are large exports. Uruguay was a bone of contention between Argentina and Brazil for 40 years after the collapse of Spanish rule, and achieved complete independence only in 1853.

history and description, 19-6982

Pictures, 19-6981

Useful vegetables, * 7-2613-24

Uskub, or **Skoplie.** Ancient Jugo-Slav city on the Vardar.

Utah. Western state; area, 84,990 square miles; capital and largest city, Salt Lake City. Sheep-raising, farming and mining are the leading occupations; smelting of copper and lead are the leading industries. Nickname, "Beehive State" or "Mormon State." Flower, Sego lily. Motto, "Industry." The state was named after the Utes, an Indian tribe. First settlement, Salt Lake City, 1847.

described in Western States, 18-6425-34;

19-6841-50

ceded by Mexico, 6-1920

desert of, description, 7-2421

Mormon settlements, 6-1920, 1922; 18-6430

statehood granted, 11-3944

useful minerals, 9-3208, 3210

Zion National Park, 7-2291

Pictures

Bryce Canyon, 18-6436

Edwin Natural Bridge, 18-6425

flag (in color), 19-7191

message on buffalo skull, 6-1923

monument to sea gulls, 17-6288

road in the desert, 9-3031

Temple Block, Salt Lake City, 19-6844

Wasatch National Forest, 8-2811

Zion National Park, 7-2286; 19-6849

Utopia, by More, account of, 1-306

Utrecht. Ancient Dutch city on the Old Rhine, with two cathedrals, one of the 8th century, and a university. Textiles and tobacco are manufactured.

Picture, 15-5565

Utrecht, Peace of, 1713

terms, as to America, 2-683



Vaal. Tributary of the Orange River forming the boundary between the Transvaal and Orange Free State. 500 miles.

Vaccination

discovered by Edward Jenner, 8-2728

Question about. Why does vaccination save us from smallpox? 7-2485

Vaccine to prevent yellow fever, 15-5492

Vacuum, Guericke's discovery of power, with picture, 4-1244-45

Vacuum tubes

account of, 16-5940-44

for radio, explanation, 17-6368

Vade mecum. Latin for "go with me"; a small book of reference carried on the person for instant use.

Valais. Mountainous Swiss canton bordering France and Italy. It is traversed by the Rhone.

Valdivia. Port of southern Chile, exporting wheat, hides, wool and whale-oil.

Valence. Old French city on the Rhone, with an 11th-century cathedral and a busy river trade.

Valencia. Spanish cathedral and university city and Mediterranean port, the largest after Barcelona. It is a thriving manufacturing centre and does a great export trade, largely in fruit.

Pictures, 14-5051

cathedral, 14-5049

Valenciennes. Manufacturing town of northern France, on the Scheldt. Once famous for its lace, it has cambric, iron and engineering industries.

Valentia, Ireland, terminal of first Atlantic

cable, 12-4294

Valentine, St., not connected with St. Valen-

tine's Day, 16-5958

Valentine's Day

Question about. What is the meaning of St.

Valentine's Day? 16-5958

Valerian

great or cat's valerian, 16-5880

note on, 16-5875

Pictures

great or cat's valerian, 16-5875; (in color)

16-5883

swamp valerian (in color), 16-5882

Valetta, capital of Malta, 9-3182

Valhalla, Norse heaven, 11-3959

Valladolid. Historic cathedral and university city of central Spain, having once been capital of Castile and Leon. It manufactures textiles, but is famous chiefly for its beautiful old buildings. Christopher Columbus died here, and Cervantes wrote part of Don Quixote in Valladolid.

See also 14-5050

Pictures

bridge across the Pisuerga, 14-5052

Facade of San Pablo, 14-5045

Valley Forge

sufferings of army at, 4-1169-70; 18-6835

Pictures, 4-1169; 18-6835

Vallotton, Félix, French painter, 8-2858

Valparaiso. Great port of central Chile, 116 miles by railway from the capital, Santiago. Founded in 1536, it has many busy industries, including sugar-refining and iron-founding.

description and pictures, 19-7050

earthquake of 1906, 19-7038

Value, meaning, in economics, 16-5933

increased by added work, 15-5590

Value, supply and demand, * 16-5933-36

Valves

one-way valve in lifeboats, 5-1808

Vampires, bats, 1-316

Picture, 1-314

Van, Lake. Salt lake in Turkish Armenia, 55 miles long, 40 miles broad, and 5,200 feet above sea-level.

Vanadium (V). A metal belonging to the antimony group and closely connected with the elements of the nitrogen group. Metallic vanadium is a light gray powder with a silvery lustre under the microscope. It is very little acted upon by air or moisture at ordinary temperature. The most abundant source is vanadinite. Vanadium bronze used to replace gold bronze is derived from an acid of vanadium.

Vanbrugh, John, English architect, 18-6491

Van Buren, Martin, president of U. S.

administration, 11-3939

life, outline of, 11-3952

Picture, portrait (gravure), 11-3947

Vancouver, George (1758-98). Captain in the British navy. Explored Vancouver Island, and Columbia River, between 1792 and 1794.

in Hawaii, 10-3586

Vancouver. Chief British Columbian port, the Pacific terminus of the C.P.R. and C.N.R. and other railways. Standing on a magnificent harbor on the mainland of British Columbia, it has

GENERAL INDEX

Vancouver (continued)

large shipbuilding and lumber industries, and is becoming one of the most important Canadian grain ports.

Pictures

Lions, mountain peaks, 7-2315
Stanley Park, 1-104

Vancouver Island. Beautiful island of British Columbia, Canada, covering about 20,000 square miles. The first part of the province to be settled, it has fruit-growing, fishing and coal-mining industries, Victoria being the chief town and port.

location, 1-114

Picture, map, 1-107

Vanda, Polish princess, 13-4679

Vandalism. Wanton and deliberate destruction, especially of ancient buildings and irreplaceable works of art. The term refers to the harm worked by the Vandals, the Teutonic people who in the 5th century overran Western and Southern Europe, and attacked Rome.

Van der Goes, Hugo, see Goes, Hugo van der

Van der Helst, Bartholomeus, see Helst, Bartholomeus van der

Vanderlyn, John, American painter

Picture, Landing of Columbus, 1-82

Van der Weyden, Roger, see Weyden

Van Diemen, Anthony. A governor of the Dutch East Indies in the 17th century. Tasmania was named Van Diemen's Land in his honor.

Van Dyck, Sir Anthony, Flemish painter

* life and work, 5-1586

painting in England, and influence, 6-2000

portraits of Charles I and family, 6-1974, 1976

Pictures

Andrea Brignole-Sale on Horseback, 5-1587

Charles I on horseback, 11-3848

Children of Charles I, 5-1585

Earl of Arundel and his Grandson, 5-1584

Frans Snyder and his Wife, 5-1587

James Stuart, Duke of Lennox, 5-1584

Van Dyke, Henry, see Poetry Index for poems and notes

Van Eyck, Hubert and Jan, see Eyck

Van Gogh, Vincent, see Gogh

Van Horne, Sir William Cornelius (1843-1915). Born in Illinois. Became Canadian citizen. Great railway man. President of the Canadian Pacific Railway.

Vanilla, account of, 8-2994-95

Picture, gathering pods, 8-2995

Van Tollens, Hendrik, see Poetry Index for poem and note

Van Tromp, Martin. Dutch admiral, chief opponent of Blake; born, Briel, 1597; killed near Texel, 1653.

Vapor in sky, protection against sun, 13-4595

Vardar. River of Jugo-Slavia and Greece, rising in the Shar Dagh and flowing past Uskub and Salonica into the Aegean Sea. 200 miles.

Vardhamana, founder of Jainism, 9-3088

Variation of species in plants, 4-1390

Varicose veins, cause of, 14-5001

Varley, Frederick, Canadian painter, 10-3704

Picture, John, a Portrait, 10-3709

Varna, Bulgaria, 14-4926

Varnish, how to apply, 9-3119

how to remove stains of, 2-618

Vasa, parrot, 10-3616, 3618

Vasco da Gama, see Gama

Vase, directions for making of tin and spoons, 15-5334

Vases

Cretan, ancient, 2-448

Greek, ancient, 2-450-51

how made, note with pictures, 5-1667

Pictures

Cretan, ancient, 2-448; 11-3989

Greek, ancient, 2-450-52; (gravure), 1-67

Vasili, Cathedral of, note and picture, 16-5857

Vassar College, 12-4310

Picture, Thompson Memorial Library, 12-4313

Vaterland, former name of ship Leviathan, 12-4428

Vatican, Rome, palace of the Pope

history and architecture, 17-6309

Michelangelo's paintings in Sistine Chapel, 3-831

Picture (gravure), 17-6305

Vaughan, Henry, see Poetry Index for poems and notes

Vecchio, Palma, see Palma, Jacopo

Vedas, sacred books of India, 15-5461

Veddahs, primitive race in Ceylon, 9-3184

Vedder, Elihu, American painter, 10-3450

Picture, Lost Mind (gravure), 10-3462

Veery, bird, 13-4839

Vega, Lope de, Spanish author, 19-7129

Picture, portrait, 19-7125

Vegard, Professor, theory about atmosphere, 18-6550

Vegetables, description, 7-2613-24

Question about. What is the difference between a fruit and a vegetable? 18-6693

Vegetarianism

arguments about use of meat, 7-2567-69

Veii, city captured by Romans, 4-1362

Veins

description, 4-1209-15

discovery of valves, 8-2725

wounded, treatment for, 15-5599-5600

See also Blood—circulation

Velasquez, Diego, began conquest of Cuba, 19-7101

Velasquez, Diego Rodriguez de Silva, Spanish painter, 4-1496, 1498, 1500

treatment of color, 7-2480

Pictures

* Some portraits by Velasquez (gravure), 4-1501-04

Christ and the Pilgrims of Emmaus, 4-1497

Ferdinand of Austria (gravure), 1-71

Forge of Vulcan, 4-1495

Infante Philip Prosper, 4-1494

The Old Cook, 9-3072

Vellum, a kind of parchment, 10-3550

use in manuscript, 2-582

Velocity, scientific use of word, 14-4903

Velvet grass, note and picture, 10-3657

Vener, Lake. Largest Scandinavian lake, in southwest Sweden. 2,149 square miles in extent, it forms part of the canal and lake waterway connecting Gothenburg and Stockholm.

Venet, tribe from Gaul, ships of, 11-3914

Venetia. Old Italian province between the Adriatic and the Alps, containing Venice, Padua and Verona. It was ceded to Italy by Austria in 1866.

Venezuela. Northern republic of South America; area, about 393,874 square miles; capital, Caracas. Its chief physical feature is the Orinoco, which, with its tributaries, provides about 12,000 miles of waterways, and roughly divides the agricultural and pastoral regions from the forests of the south. The country is now being rapidly developed, petroleum, coffee, cocoa, gold, hides, cattle and sugar all being important exports. La Guayra, Valencia, Maracaibo, Merida and Barquisimeto are growing towns. Venezuela proclaimed its independence in 1811, and was freed by Bolivar after 11 years of war with Spain.

description, 19-6976

exploration by Sir Walter Raleigh, 14-4967

history, 19-6975-76

and Bolivar, 13-4591

"Veni, vidi, vici"

Question about. Who used the famous words,

"Veni, vidi, vici"? 7-2487

Venice, Italy

* Makers of Venice, 4-1455-64

architecture, 4-1456, 1458-59

Renaissance period, 17-6310-11

given to Austria by Napoleon I, 6-2201

loss of wealth, 14-5246

meeting of Barbarossa and the Pope,

11-3962-63

new industrial development, 13-4572

* painting, 4-1460-64

painters through 16th century, 3-1103-07

palace of the Doges, 17-6311

Rialto Bridge, 4-1458

St. Mark's, see St. Mark's

sculpture, 4-1459-60; 13-4605

ships of, 14th century, 11-3916

Poem about. Venice, by Byron, 14-5131

Pictures, 13-4567

* famous structures (gravure), 17-6301-04, 6307-08

* scenes in (gravure), 4-1465-68

St. Mark's (gravure), 16-5721-22

Venizelos, Eleutheros, Greek statesman, 14-4918

Ventilation

need in factories, etc., 4-1331

on modern ship, 12-4416-17

GENERAL INDEX

- Ventricle**, chamber of heart, 4-1212
- Ventriloquism**, how to practice, 9-3379-80
- Venus (Aphrodite)**, goddess, 9-3227
- Pictures*, 9-3231-32
- See also* Aphrodite and Venus of Milo
- Venus**, planet
- account of, 9-3290, 3292
- distance from sun and length of year, 9-3180
- transit across sun first seen by Horrocks, 1-282
- Pictures*
- diagram of orbit, 9-3290
- imaginary view of surface, 9-3293
- orbit as seen from earth, 9-3289
- Venus of Milo**, statue
- discovered by D'Urville, 14-5090
- probably by follower of Phidias, 12-4222
- Picture* (gravure), 12-4333
- Venus's fly-trap**, plant, 2-746; 19-7086
- Pictures*, 1-331; 19-7087
- Venus's girdle**, a jellyfish, 19-7060
- Picture*, 19-7067
- Vera Cruz**, Port of Mexico, 265 miles by railway from Mexico City. It was founded by Cortez in 1519 on a slightly different site. It exports coffee, tobacco, sugar, rubber and mineral ore.
- American force landed at, in 1914, 19-7140
- Sir John Hawkins in, 14-4960
- Verazzano, Giovanni da**, *see* Verrazano
- Verb**. A part of speech that asserts or declares and which with a subject makes up a sentence.
- Verbena**. *Picture*, flowers (gravure), 19-7174
- Verbum sapienti satis est**. Latin for "a word to the wise is sufficient."
- Vercheres, Madeline de**, heroism of, 11-4089-91
- Vercingetorix**, Gallic chief, 4-1360
- Verde, Cape**. Westernmost point of Africa in Senegal.
- Verdi, Giuseppe**, Italian musical composer, 19-6924, 7150
- Picture*, portrait, 19-6912
- Verdigris**
- Question about*. What is verdigris? 17-6175
- Verdun**. Ancient French fortress on the Meuse, famous for its defense against the Germans in 1916, when the cathedral and town were badly damaged.
- Vereshchagin, Vasili**, Russian painter, 8-2851-52
- Vergil**, *see* Virgil
- Vergiliae**, name for Pleiades, 6-1971
- Vermeer, Jan (Johannes)**, Dutch painter, 5-1594
- Pictures*
- The Cook, 9-3074
- The Pearl Necklace, 9-3075
- Young Woman with a Water Jug, 5-1593
- Vermont**. New England state; area, 9,564 square miles; capital, Montpelier. Largest city, Burlington. Farming and dairying are carried on, and the state leads in granite and marble quarrying and maple-sugar industries. The leading industries are woolen goods and preparing stone. Abbreviation, Vt. Nickname, "Green Mountain State." Flower, red clover. Motto, "Freedom and Unity." The name comes from two French words: *verd*, green, and *mont*, mountain. First settlement, Fortummer, 1724.
- described in Northeastern States, 10-3401-08; 11-3773-82; 12-4145-54
- early history (chronologically arranged)
- origin of name, 6-1905-06
- Green Mountain boys, 4-1164; 6-1906
- Battle of Bennington, 4-1168
- declared independence, 6-1906
- admitted to Union, 6-1906
- products
- building stone, 11-3773
- maple sugar, 10-3420
- Pictures*
- Bennington monument, 12-4151
- flag (in color) 19-7190
- granite quarry, 11-3775
- maple-sugar camp, 10-3408
- village in the hills, 12-4151
- Vernal grass**, note and picture, 10-3658
- Verne, Jules**, French author, note on, 12-4235
- * Round the World in Eighty Days, summary, 12-4235-44
- Verner, Frederick**, Canadian painter, 10-3702
- Vernet, Horace**, French painter, 6-2082
- Pictures*
- Battle of Bouvines, 6-2077
- Eastern Trader, 6-2079
- The Taking of the Smala, 6-2079
- Vernet, Joseph**, French painter, 5-1882
- Picture*, Mediterranean scene, 5-1875
- Verocchio, Andrea del**, *see* Verrocchio
- Verona**. One of the most beautiful Italian cities, containing a famous Roman amphitheatre, a 12th-century cathedral, the ancient castle of Theodoric, many fine palaces, and a splendid art collection of the Veronese, Paduan and Venetian schools. It lies at the foot of the Alps, and has furniture and textile manufactures.
- Pictures*, 13-4567
- old Roman amphitheatre, 15-5341
- Town Hall (gravure), 17-6306
- Veronese, Paolo (Paolo Cagliari)**, Italian painter, 3-1107
- work in Venice, 4-1463-64
- Pictures*
- portrait, 4-1455
- portraits of himself, 4-1463
- Industry, 4-1454
- Madonna of the Cuccina Family (gravure), 3-1112
- Magdalen (gravure), 3-1112
- Marriage at Cana, 4-1454; (gravure), 3-1110
- Veronica, St.** A holy woman who is said to have used her veil to wipe the sweat from the face of Jesus on His way to Calvary. The Saviour left the impress of His face upon it when He handed it back.
- Verrazano, Giovanni da**
- expedition to America, 1524, 2-677
- explorations, 1-246
- statue of, in New York, 1-249
- Verrocchio, Andrea del**, Italian painter and sculptor, 4-1459-60; 13-4605
- Pictures*
- portrait, 4-1455
- Colleoni statue (gravure), 4-1468; 13-4614
- David, statue (gravure), 13-4614
- Versailles. Palace of**
- architecture, 18-6496
- building of, 10-3436
- description, 10-3563
- Pictures*, 18-6501
- Hall of Mirrors, 18-6463
- Versailles, Treaty of**, 1919, 11-3974; * 18-6457-63
- not ratified by Senate, 8-2674
- Verse**, in poetry, definition, 1-216
- Versification**, *see* Poetry
- Vertebrae**, parts of backbone, 5-1562-63
- Vertebrates**, animals with backbones
- * history and description, 1-255-59
- classes of, 1-256; 5-1559-60
- first, in Silurian period, 3-1032
- Vertumnus**, god of gardens and orchards, 9-3235
- Very seat of life**, * 2-661-64
- Vesalius, Andreas**, medical discoveries of, 8-2725
- Vespasian**, Roman emperor, 5-1863
- Picture*, bust of, 5-1863
- Vesper**, in ancient mythology, was Venus, the evening star, 9-3233
- Vespucchi, Amerigo (Americus Vesputius)**
- explorations, 1-189, 242
- false claims of, 8-2980
- Picture*, portrait, 1-88
- Vesta (Hestia)**, goddess of fire, 9-3226
- Vestal virgins**, account of, 9-3227
- Vesuvius, Mt.**, volcano, 13-4568
- eruption buried Pompeii, 5-1863
- height of, 7-2313
- Pictures*, 2-524; 7-2313
- Vetch**
- milk, *see* Loco weeds
- tufted, 14-4976-77
- Picture*, tufted vetch, 14-4977
- Pictures* (in color)
- bitter vetch, 14-4988
- bush vetch, 14-4991
- cow vetch, 13-4877
- slender vetch, 15-5612
- tuberous bitter vetch, 14-4992
- wood vetch, 15-5610
- Vetchling**, flower
- Pictures* (in color)
- blue marsh vetchling, 16-5881
- grass vetchling, 14-4986
- yellow vetchling, 15-5611
- Veto**. From the Latin *veto*, I forbid. The power or right in one branch of a constitutional government to negative the wishes of another branch; for example, the right of a president or

GENERAL INDEX

Veto (continued)

king to reject a bill passed by the legislature or parliament of the country. In the United States, the two Houses can reconsider a bill returned by the president, and by a two-thirds majority pass such bill over the president's veto. In Great Britain the veto has not been used since the days of William III.

Veturia, Roman matron, and Coriolanus, 2-586

Vibrations

of ether, in light and sound, 11-3804
of light and sound compared, 12-4156
of string in musical instruments, 8-2719;
19-6854

relation to overtones, 19-6851-52

Viburnum, *Picture*, flower (gravure), 19-7178

"Vicar of Christ," title of the Pope, 8-2843

Vicar of Wakefield, see Goldsmith, Oliver

Vice versa, Latin for "the other way round."

Vicenza, Ancient walled city of Venetia, Italy, with a fine Gothic cathedral. It manufactures silk, linen, paper and velvet.

Picture, Basilica Palladiana (gravure), 17-6307

Vichy, Health resort in central France, famous for medicinal springs.

Vicksburg, Miss.

taken by Grant in 1863, 7-2436

Victor Emmanuel I, king of Italy

and fight for Italian unity, 12-4412

Victor Emmanuel II, king of Italy, 13-4590

Picture, meeting Garibaldi, 13-4589

Victor talking machine, 1-264-65

Victoria, queen of England

as a little girl, 7-2293

death, 7-2300

reign, 7-2296, 2298-99

Picture, when told she is queen (painting by H. T. Wells), 7-2292

Victoria, Capital of British Columbia, on Vancouver Island. A rapidly growing port, it has considerable lumber, canning and shipping trades.

Victoria, capital of Hongkong, China, 2-436
description, 9-3186

Victoria, capital of the Seychelles, 9-3182

Victoria, state of Australia, 7-2466, 2468

Victoria Bridge, Montreal, note and picture, 1-35

Victoria Falls, on the Zambezi, 18-6806

description, 9-3052

discovered by Livingstone, 2-468

Pictures, 7-2541; 9-3049

Victoria Nyanza, Lake, 9-3054

discovered by Speke, 2-471

size, 7-2484

Victoria regia, a lily, 9-3266

Picture, 9-3263

Victorian era, characteristics, 7-2293-99;
10-3469

See also Nineteenth century

Victory, Nelson's flagship, 11-3918

Picture, 11-3919

Victory, Statues of

Winged Victory, first example, 11-3992

Victory of Samothrace, 12-4332

Pictures

first Winged Victory, Nike of Delos, 11-3991

Victory of Samothrace (gravure), 12-4336

Vicuña, llama, 5-1600

Picture, (gravure), 5-1604

Vidocq, French detective, story about, 18-6476,
6791-92

Vienna, Fourth largest European city, capital of Austria. On both banks of the Danube, it is a great commercial, banking and manufacturing centre, though its trade has declined since the break-up of the Austrian Empire; it is famous for the arts and sciences. Splendid buildings include: the old cathedral of St. Stephen, shaped like a Latin cross, with a steeple 450 feet high; the Hofburg, the former imperial palace; and the Gothic Rathaus.

See also 17-6196

attacked by Turks, 11-3964

protected from Turks by Polish king,

13-4682, 4800, 4802

Pictures, 17-6195

St. Stephen's cathedral (gravure), 17-6171

Vienna, Congress of, 10-3572; 11-3968

Picture, 11-3959

Vigilance Committees of California, 6-1922

Vignola, Barozzi da, Italian architect, 17-6309

Vikings

arctic explorations, 13-4707-08

funeral custom, 14-4953

invasion of England, 4-1432

ships of, 11-3916

visits to America, 1-241

See also Northmen; Danes

Poem about, Sea-King's Burial, by Charles Mackay, 14-4953

Pictures

reproduction of ship, 11-3911

ship at sea, 1-240

Vikings on sea and land, 1-243

Vilkitski, B. A., arctic explorer, 13-4722

Villehardouin, Geoffroi de, early French writer 18-6562

Villi of the alimentary canal

Picture, magnified diagram, 6-2083

Villiers, George, see Buckingham, 1st Duke of

Villon, François, French poet, 18-6563-64

Vilna, Cathedral city in northeast Poland, trading in timber and corn.

lost to Lithuania, 18-6461

Vimy Ridge, Canadian monument at, 14-5078

Vincent de Paul, Saint, 5-1732-33

Vinci, Leonardo da, Italian artist and genius

* life and work, 3-824, 828, 830

and canal locks, 13-4785

first painter to use light and shade in color, 3-957

Pictures

Beatrice d'Este, 3-825

Last Supper, 3-830

Lodovico Sforza, 3-825

Madonna of the Rocks, 3-825

Mary, Saint Anne, and the Infant Jesus, 3-825

Mona Lisa, 3-829

Vinegar. An impure and weak form of acetic acid obtained by acetous fermentation of alcoholic products, usually wine, cider or malt. Vinegar is used for preserving and cooking purposes, as well as for a condiment with pickles or mayonnaise.

Vines

tendrils, movement of, 2-744

ways of climbing, 1-333-34

ways of growth, 2-745

Vinje, Aasmund, Norwegian poet, 19-7012

Violas, flowers, 19-7171

Picture (gravure), 19-7175

Violet Family, in botany, 13-4873

Violets, flowers

account of, 17-6276

care in cold weather, 5-1767

garden, description, 19-7171

national flower of Athens, 17-6180

of Pacific coast, 19-6936

Poem about, The Violet, by Jane Taylor, 2-489

Picture

single violet (gravure), 19-7175

Pictures (in color)

dog violet, 13-4880

hairy violet, 14-4983

marsh violet, 16-5882

sweet violet, 13-4878

wood violet, 14-4991

Violets, Water, see Water violet

Violin

famous makers of, 18-6700

how tones are produced, 10-3556

note sounded affected by length and tightness

of string, 18-6699

tone variations, 19-6852

reason in shape of violin body, 18-6700

tones compared to voice, 10-3558

toy, directions for making from cigar box, 9-3113-14

Questions about

Why does a violin string change its note

when held down? 8-2719

Why has a violin two slits in it? 12-4505

Picture, early form, 19-6900

Vipers, snakes

fable about, by Æsop, 6-1969

varieties, and account of, 15-5414

Pictures, 15-5413

horned viper, 15-5411

Viper's bugloss, plant, 14-4974

Virchow, Rudolf, German anatomist, the founder of cellular pathology; born, Pomerania, 1821; died, Berlin, 1902.

GENERAL INDEX

Vireos, birds, 9-3139; 13-4836, 4838; 14-5142

Picture, nest, 13-4765

Virgil, Roman poet

* life and writings, 16-5911

account of the bee, 17-6222

Æneid, story of, 6-1986-89

Dryden's translation of, 4-1358

on sheep farming, 15-5576

See also Poetry Index, for poem and note

Pictures

portrait, 16-5907

portrait in group, 16-5906

Virgin Islands. More than 100 West Indian Islands in the Leeward group; area, 465 square miles. Ownership of the islands is divided between the United States and Great Britain. Culebra, Culebrita, Vieques, St. Croix, St. Thomas and St. John are American, the last-mentioned three having been bought from Denmark in 1917. Tortola, Virgin, Gorda, Jost van Dyke, Peter's Island and Salt Island are the most important of the British Islands. The Virgin Islands were discovered by Columbus on his second voyage in 1493. Stock-raising, copper-mining, and sugar-and cotton-growing are carried on.

* account of, 10-3594

three islands bought by U. S., 19-7104

See also Danish West Indies

Virginal, musical instrument, 5-1796

Virginia. Historic state, the first permanent English colony having been founded at Jamestown in 1607; area, 42,627 square miles; capital and largest city, Richmond. Essentially agricultural, it produces much grain, fruit and vegetables, but easily its most important product is tobacco; manufactures cotton, tobacco and lumber. Produces coal and other minerals. Norfolk and Newport News are busy ports. Abbreviation, Va. Nickname, "Old Dominion." Flower, American dogwood. Motto, "Sic semper tyrannis" (Thus always to tyrants). The name was given by Sir Walter Raleigh in honor of Queen Elizabeth, the Virgin Queen.

described in Southern States, 13-4517-28;

14-4889-4900

early books about, 12-4445

history (arranged chronologically)

and Capt. John Smith, 14-4971

and Sir Walter Raleigh, 14-4966-67

origin of name, 1-251; 14-4966; 17-6333

early settlements, 2-543-46

slavery introduced, 2-546

development of colony, 2-550-55

claimed Ohio Valley, 3-780

Braddock expedition, 3-780

in Revolution, 4-1164, 1172

signers of Declaration of Independence,

20-7557

signers of Constitution, 20-7574

secedes from Union (April 17, 1861), 7-2432

Richmond made capital of Confederacy,

7-2432

state divided, 7-2432

battlefield of Civil War, 7-2432-42

presidents from, 8-2676

Pictures

Arlington, 5-1541; 14-4893

cabbage field, 13-4523

Capitol Square, Richmond, 14-4900

caverns of Shenandoah, 14-4900

Jamestown old church, 2-542

just before Cornwallis surrendered, 4-1173

McLean house, Appomattox, 7-2441

Merrimac and Monitor, 7-2435

Monticello, 18-6837

Mt. Vernon, 18-6839

mountains to sea, 13-4519

Natural Bridge, 14-4900

Old Bruton Church, 5-1701

original capitol at Richmond, 7-2441

St. John's Church, 18-6830

through the Dismal Swamp, 14-4894

Washington's Tomb, 3-1041

Westover (grave), 18-6685

White House of Confederacy, 14-4893

Woodrow Wilson's birthplace, 19-7195

Virginia, ship, Confederate name for Merrimac,

7-2434

Virginia, University of, note and picture,

12-4314

Virginia Company, to colonize America,

2-543-44

Virginia creeper, resembles poison ivy, 13-4782

Virginians, by William Thackeray, outline of,

8-2738

Viscacha, animal. *Picture, 3-1130*

Vischer, Peter, German sculptor, 13-4700

Picture, Shrine of St. Sebald, 13-4702

Vision of Piers Plowman, 1-305

Vistula. River of Eastern Europe, rising in the Beskid Mountains, Czecho-Slovakia, and flowing through Poland into the Baltic. It drains 74,000 square miles, and passes Cracow, Warsaw, Plock, Thorn, Graudenz and Danzig, its chief tributaries being the Bug and San. 650 miles.

Vitamins

in flour, 8-2802

in potatoes, 5-1624

Vitellius, Aulus, Roman emperor, 5-1863

Vitruvius Pollio, Marcus, book on architecture,

15-5342

Vitus, St. Sicilian boy who was converted to Christianity and martyred about 303. For many years it was believed that dancing before his image on his festival would bring good health for a year, and this is the origin of the name St. Vitus' Dance as applied to a nervous disease.

Vivarini family, Italian painters, 3-1104

Vive la République. French for "Long live the Republic!"

Viviparous lizard, 14-5234

Vladimir, Grand Prince of Russia, 10th century,

16-5691

Vladivostok. Siberian port on the Sea of Japan, with a splendid harbor. It is closed for a few months in the winter.

Russian port on the Pacific, 16-5859

Vocal cords, account of, 10-3555-56

and overtones, 19-6853-54

Vogelweide, see Walther von der Vogelweide

Voice

* how produced, 10-3555-61

different kinds, reason for, 10-3558-59

pictures drawn by, 10-3554

how made, 17-6145

pleasant voice, cultivation of, 10-3558-59

vocal cords and overtones, 19-6853-54

Questions about

Why do our voices sound hollow in an empty hall? 6-2122

Why does a boy's voice break and not a girl's? 4-1230

Why does my voice seem louder if I put my hands over my ears? 18-6554

Voice-box, see Larynx

Volcanoes

account of, 7-2313-14

in Alaska, 16-5795

in Antarctica, 14-5089

in early geologic times, 2-526; 4-1401

in Hawaii, 15-5447

Mauna Loa, 2-446

in Japan, 2-568

in mythology, 9-3237

in North America, 1-158

Kilauea, largest active one, 10-3584

Lassen Peak, California, 7-2288

list of, with heights, 7-2313

mud-volcanoes, New Zealand, 7-2579

origin of word, 9-3237

washed away by rivers, 7-2537

Question about. How is a volcano formed?

8-2873-74

Pictures, 2-524; 7-2317-18

imaginary section through Mt. Ætna, facing

2-385

Mauna Loa, Hawaii, 2-446

on moon, 10-3541

Stromboli, Pelée, and a mud volcano, 6-2176

Volente Deo, Latin for "God willing," usually

written, D.V.

Volga. Longest river of Russia and Europe, rising in the Valdai Hills and flowing into the Caspian. Draining 563,000 square miles, it is navigable almost throughout its course, while it connects by canals with the Neva and Baltic. The Oka and Kama are its chief tributaries, and it passes Tver, Jaroslav, Kostroma, Nijni Novgorod, Kazan, Simbirsk, Samara, Saratov, Tsaritsin and Astrakhan. Sturgeon and salmon abound in its waters. 2,400 miles.

Volplane, method of landing from airplane,

1-172

Voigt, electrical measurement, 16-5674

Volta, Alessandro, Italian physicist

electric cells, 18-5671

GENERAL INDEX

Volta, Alessandro (*continued*)
electrical discoveries, 4-1250-51
Picture, portrait, 4-1243

Volta Bureau, founded by Alexander Graham Bell, 17-6242

Voltaic cell, invention by Volta, 4-1251
See also Electric batteries

Voltaire, French writer, 18-6714-15
Pictures, portraits, 6-2127; 18-6559, 6716

Volume, means size, differs from mass, 2-385-86

Volumnia, Roman matron, and Coriolanus, 2-586

Von Bellingshausen, Fabian, *see* Bellingshausen

Von Kleist, *see* Kleist, H. W. von

Von Winkelried, Arnold, *see* Winkelried, Arnold von

Vonnoh, Bessie Potter (Mrs. Robert), American sculptor, 14-4940
Picture, statuette, Motherhood, 14-4939

Vosges, Thickly wooded mountain range in northeast France, between the Saône and Moselle basins.

Voting
classes in England receiving vote, 19th century, 7-2298
duty of, 6-2093
in Canada, 5-1836
woman-suffrage leaders in U. S., 14-5268-69

Vowel flame, device in sound study, 19-5855

Vowels
more musical than consonants, 10-3560
pronunciation of, with diagram, 10-3559-61
sounds and overtones of, 19-6855

Vulcan (Hephaestus), god, 9-3227

Vulcan, name of undiscovered planet, 9-3290

Vulcanite, how made, and uses, 4-1406

Vulcanization of rubber, 4-1406; 19-7211

Vultures, birds, 10-3759-60
of southern United States, 14-5021
Pictures, (gravure), 10-3761-64

Wabash River, American river, rising in Mercer County, Ohio; flows into the Ohio River. 550 miles.

Waccamaw River, American river, rising in southern North Carolina; empties into the Great Pedee River. 550 miles.

Wacousta, book by John Richardson
comment on, 14-5106
* quotations and summary, 9-3141-49

Wages
relation to invention, 19-7214
relation to supply and demand, 17-6094

Wagner, Carl, artist
Picture, Bismarck concluding Peace of Versailles, 11-3969

Wagner, Richard, German musical composer
* life and work, 19-6923
Lohengrin, opera, based on legend, 8-2957
music dramas of, 19-7151
Pictures
contemporary caricature, 19-7151
portrait, 19-6912

Wagram, battle at, 6-2206

Wagtails, birds, 9-3134
Pictures, 9-3135
Pictures (in color)
blue-headed wagtail, 9-3129
gray wagtail, 9-3131
pied wagtail, 9-3284
white wagtail, 8-2899
yellow wagtail, 9-3282

Wahhabis, in Arabia, 18-6674

Wake-robin, name for cuckoo-pint, 17-6123

Wake-robin, name for white trillium, 17-6276

Waking
Questions about
Do we always wake when we have had enough sleep? 5-1609
What makes me wake up in the morning? 1-78
Why cannot we grasp a bar tightly when we first wake up? 4-1356

Walcheren, Dutch island at the mouth of the Scheldt, the scene of a disastrous British ex-

Walcheren (*continued*)
pedition in 1809. Here are Middelburg and the port of Flushing.

Walden pond, *see* Thoreau, H. D.

Waldstein, or Waldenstein, Albrecht Eusebius von, *see* Wallenstein

Wales, Western principality of Great Britain; area, 7,470 square miles. Comprising 12 counties, it is generally mountainous, Snowdon (3,571 feet) being the highest mountain in England and Wales. Most of the country is pastoral and agricultural, but in South Wales is the most important anthracite coal-field in Great Britain, and here also are large copper, tinplate, zinc and oil-refining industries. Cardiff, Rhondda and Swansea are the chief industrial centres.
ancient Britons there, 4-1320
conquered by Edward I, 5-1679
national emblem, the leek, 17-6181
song, March of the Men of Harlech, 17-6254
Picture, landscape (gravure), 7-2304

Wales, Prince of
first Prince of Wales, 5-1680
Picture, radio photograph of present prince, 17-6364

Walk, concrete, directions for making, 11-3854-55

Walker, Frederick, English painter
Picture, A Rainy Day, 8-2921

Walker, Helen, walk to London, 12-4224

Walker, Henry Oliver, American painter
paintings in Library of Congress, 5-1536

Walker, Horatio, Canadian painter, 10-3702
Picture, Oxen Drinking (gravure), 10-3705

Walker, John, made first matches, 19-6966
note and picture, 1-309

Walker, W. R., relaid foundation of Winchester Cathedral, 13-4596

Walking
acts necessary in, 10-3425
as affected by centre of gravity, 14-5178
difference between man and animal, 5-1562
measuring speed, 6-2048
time required to learn, 3-877
Questions about
Could a man ever walk from France to England? 16-5840
Could we walk without toes? 1-74
Why can baby animals walk so soon? 17-6173
Why do we swing our arms when we walk? 5-1808
Why is walking easier on a rough surface than on a smooth one? 6-2124
Why must a baby learn to walk? 3-877

Walking sticks, insects, 17-6070
Picture, 17-6071

Wall barley, *see* Barley, Wall

Wall-eyed pike, *see* Pike—wall-eyed

Wall-pepper, 14-4973

Wall-rack, directions for making, 7-2379

Wallabies, kangaroos, 7-2503
Pictures (gravure), 7-2506-07

Wallace, Alfred Russel, English scientist, and Darwin, 2-594
pointed out Wallace Line, 2-587
Picture, portrait, 2-589

Wallace, Frederick William, Canadian author, 15-5371

Wallace, Lew, American author, life, 13-4823
* Ben-Hur, quotations and summary, 10-3745-52

Wallace, Sir William, 12-4208; 13-4586
* in Scottish Chiefs, 12-4319-26
Picture, portrait, 13-4583

Wallace, W. S., Canadian historian, 15-5368

Wallace Line, geological channel, 2-587

Wallachia, part of Rumania, 14-4919, 4922

Wallenstein, Albrecht Eusebius von, German general, 11-3964

Waller, Edmund, *see* Poetry Index for poem and note

Wallflower, 19-7170
Picture (gravure), 19-7180

Walloons, The people of southeast Belgium of Alpine stock, who are descended from the Belgæ of Cæsar's time. Many came as Protestant refugees to England, and helped to establish their silk and cloth industries. They have worshiped in Canterbury Cathedral since 1600.

Walls
concrete wall, how made, 7-2306
Roman wall, with pictures, 4-1318-19, 1323
See also Great Wall of China

GENERAL INDEX

Walls (continued)

Question about. How can sound come into a room through a wall? 12-4279

Walnut trees

black walnut, 13-4637, 4640, 4642
note on, 12-4254
varieties, 12-4248

developed by Burbank, 15-5385

white walnut, *see* Butternut

wood

how to know, 6-2048; 16-5982

used for furniture, 18-6768

See also Walnuts

Pictures, 12-4254

black walnut in winter, 13-4637

royal walnut, produced by Burbank, 15-5383

Walnuts, kinds and uses, 6-2276

English walnuts, 6-2276

Pictures, 6-2274

English walnut (in color), 11-4026

Walpole, Horace, English author

meeting with Hogarth, 7-2328

wrote Castle of Otranto, 6-2257

Picture, portrait, 6-2255

Walpole, Sir Robert, English statesman, character and policy, 6-2097-98

Walrus, 3-1000

use by Eskimos, 7-2566

Pictures, 3-999, 1001, 1004

Walter the Penniless, and First Crusade, 7-2585

Walther von der Vogelweide, medieval German poet, 17-6267

Wampum. American Indian term for strings of shells used for ornament, tribal records, and so on. These were used as a medium of exchange with the early white settlers.

Wandering Jew, legend of, 19-7224

Wapiti, animal, 4-1446

Picture, 4-1443

War, Poems about, *see* Soldiers—Poems about

War of 1812, *see* United States—history—War of 1812

Warble-flies, 17-6422

Warblers, birds

account of, 9-3277-79

American

account of, 13-4840

differ from European, 9-3279

*of North America, 14-5024-25

of western North America, 14-5145-46

wood warblers, 8-2972

Pictures, 9-3279

nest, 13-4765

Pictures (in color)

Audubon's warbler, facing 14-5133

Blackburnian warbler, 10-3623

blue-headed warbler, 12-4371

Dartford warbler, 9-3129

garden warbler, 8-2898

grasshopper warbler, 9-3130

marsh warbler, 9-3132

reed warbler, 9-3283

sedge warbler, 8-2899

Townsend's warbler, facing 14-5140

willow warbler, 9-3132

wood warbler, 8-2898

yellow warbler, 12-4370

Ward, Artemus (C. F. Browne), American author, 13-4817

Ward, Edward Matthew, English painter

Picture, Marie Antoinette, Louis XVI and their children in their Prison Cell, 6-2133

Ward, Mrs. Humphry, novelist, 11-3899

Ward, John Quincy Adams, American sculptor, 14-4936

Picture, Indian Hunter, statue, 14-4933

Ward, Nathaniel, wrote Simple cobbler of Agawam, 12-4446

Warmth

Question about. Where does the warmth in our bodies come from? 14-5218

Warner, Olin Levi, American sculptor, 14-4939

Warner, Susan, American author, 14-5014

Warning, game, 3-1029

Warrant. In law, a document granting an authorized official the power to seize or hold a person or property or to carry out a judgment. The word comes from the German "gewahren," to grant.

Warren, Joseph, American patriot

Poem about. Warren's Address to the American Soldiers, by John Pierpont, 19-6990

Warren, Lake, prehistoric lake, 1-108

Wars of the Roses, England, 5-1686

roses as emblems, 17-6181

Warsaw, Poland, 13-4692

Pictures, 13-4683, 4687

Warships, *see* Battleships

Wart. A natural excrescence, or tumor, on the skin, usually hard and irregular to the touch and circular in shape. Generally warts are found on the hands of boys and girls between ten and fifteen years of age, but they disappear in the majority of cases after growing has stopped. A doctor can cauterize warts to make them disappear.

Wart hog, description, 5-1722

Picture, 5-1721

Warwick, England

Picture, castle, 18-6488

Wash, The. Shallow bay of the North Sea into which the English rivers Witham, Welland, Nen and Great Ouse empty. It is the remnant of a much larger bay which once covered a great part of the Fen country of England and was gradually silted up by the rivers.

Washington, Booker. American Negro educationist; born, Hale's Ford, Virginia, 1858; died, Tuskegee, Alabama, 1915.

Washington, George, president of U. S.

administration, * 5-1698-1702; 11-3937

* life, 3-1039-42

life, outline of, 11-3951

led expedition against Fort Duquesne, 1754-55, 3-780

took command of American army in 1775, 4-1164

crossing the Delaware, 4-1168-69

resigned command of army, 5-1696

elected president, 5-1698

inauguration, 5-1699

organized government, as first president, 5-1700

and development of waterways, 13-4882

and French Revolution, 5-1702

birthday a holiday, 6-2088

portraits painted

by Charles Willson Peale, 9-3327

by Rembrandt Peale, 9-3327

by Gilbert Stuart, 9-3327-28

rebuke to officer, story, 5-1691

statues of

by H. K. Brown, 14-4936

by Horatio Greenough, 14-4934

by J. Q. A. Ward, 14-4936

See also Revolution, American

Pictures

portrait, 3-1039

portrait by Stuart, 9-3327

portrait (gravure), 11-3946-47

portrait, in group, by Edward Savage, 3-971

portrait, with mother, 15-5618

at Valley Forge, 4-1169

crossing the Delaware, 4-1169

first Cabinet, 5-1699

home at Mt. Vernon, 18-6839

inauguration, 5-1699

leaving New York, after Revolution, 4-1173

tomb at Mount Vernon, 3-1041

Washington, Lawrence, and Ohio Company, 3-780

Washington, Mrs. Martha, wife of George

Washington, 2-391-92

Pictures, portrait, 2-391

portrait, in group, by Edward Savage, 3-971

gown worn by, 2-393

receiving at a levee, 2-390

Washington, D. C.

* description, 5-1533-44

burned in War of 1812, 5-1705

Capitol, 5-1533-34

Conference on Limitation of Armament, 1921, 8-2674

water power, 15-5430

* *Pictures*, 5-1533-44

Capitol, 5-1535, 1543; 18-6679

Capitol before Civil War, 10-3487

Lincoln Memorial (gravure), 11-3946

Pennsylvania Railroad terminal, 2-419

Scottish Rite Temple (gravure), 18-6687

Senate and House of Representatives, 5-1786

Washington monument, 5-1539-40

Washington. Mountainous Pacific state; area, 69,127 square miles; rainiest part of the United States, it is generally thickly wooded, and has

GENERAL INDEX

Washington (continued)

bering, coal-mining, fishing, stock-raising and agriculture are the chief occupations. Lumber and food products are the leading industries. The capital is Olympia, the largest town is Seattle. Spokane is also important. Nickname, "Evergreen State" or "Chinook State." Flower, rhododendron. Motto, "Al-ki" (by and by). First settlement, Tumwater, 1845.

described in Western States, 18-6425-34;

19-6841-50

and Oregon Question, 6-1918

boundary disputes, 6-1918

made a state, 11-3944

water power, 15-5430

wealth in timber, 8-2680

Pictures

Chuckanuck Drive, Pacific Highway, 7-2307

flag (in color), 19-7191

Interstate bridge, 1-26

King Lake Dam, 15-5428

largest lumber mills, 18-6428

logs of Douglas Fir, 8-2676

Mt. Rainier, 7-2283; 19-6849

San Juan Islands, 18-6431

Seattle, views in, 19-6847

Spokane, scene in, 19-6844

University, 12-4317

Volunteer Park, Seattle, 9-3217

Wenatchie Valley, 18-6431

Washington, Mt., New Hampshire, height, 1-154

Washington, University of, note and picture

12-4317

Washita (Ouachita) River. American river, rising in western Arkansas; flows into the Red River. 550 miles.

Wasp, ship, victory over Frolic, 5-1704; 17-6330

Wasps

* account of, 17-6230-32

as paper-makers, 3-1056

brain of, 8-2838

chalcid, destroy blow-flies, 18-6724

in fig, life-history of, 6-2156, 2162

nests, with pictures, 17-6227

social wasp, home of, 17-6230

value, kill harmful insects, 17-6230

wall wasp, 17-6230

Question about. Why does a wasp's poison not hurt the wasp? 3-877

Pictures, 17-6229; (in color) facing 18-6721

Wat Tyler's Rebellion, 1381. A rising of the English peasantry against serfage, and particularly against the poll tax of 1381.

Watanna, Onoto, Canadian novelist, 15-5370

Watauga Association of Tennessee settlers, 6-1908

Watauga Valley, settlement of, 6-2196-97

Watch on the Rhine, song, account of, 10-3612

Watches

how to use as compass, 16-5768

Question about. What makes a watch go?

12-4281

Watches, plants, *see* Trumpets

Water

absorbed by roots, 2-613-14

action in forming the earth, 2-525-27

as rain, 8-2921-24

clouds composed of, 8-2922

composition of, 12-4404-05

condensation of, 8-2921-24

as hail, 8-2923-24

as rain, 8-2923-24

as snow, 8-2923; 14-4906

densest at 4 degrees Centigrade, 14-5036

drops, explanation of, 11-3843

effect on temperature, 8-2664, 2666

evaporation of, 3-981; 8-2921

expansion of, 9-3101

as ice, 4-1355

experiments with, 19-7083-84

boiling in paper, 2-623

fairy fountain, 2-627

floating a needle, 2-623

siphon, 2-622

filter, how to make, 18-6781

freezing point of, 15-5573

heat retained by, 10-3475

heat, specific, 16-5663

illustrates molecular theory of heat,

15-5573

measure of specific gravity, 14-5036-37

necessary for life, 2-664, 6-2186

plants require, 2-613-16, 743-46

Water (continued)

proportion in food, diagram, 6-2185

purification by aerators, 14-5057

reflects like mirror, 3-978

sinks into earth, 6-2249

springs, how caused, 6-2249; 15-5620

stagnant, purity of, 14-5084

* supply of a great city, 14-5055-60

temperature when densest, 14-1902

use in body, 6-2186

ways of carrying, 12-4376

For list of main articles, *see* 20-7615-16

Questions about

Can fresh water be found in the sea? 2-584

Do we get a pound of ice from a pound of water? 14-5086

How does still water reflect a distant scene? 3-978

How much water is there in the sea? 10-3578
If the gases in water make fire, why does water quench it? 15-5614

Is it harmful to us to drink rain-water? 1-310

Is there any water anywhere except in our world? 14-5222

Is there any water in the sun? 6-2122

What makes the water ripple when we throw a stone into it? 14-5221

What makes water gurgle when it comes out of a bottle? 11-3979

When water is boiling, why can it not be made hotter? 13-4595

Where does the spring water come from? 15-5620

Where does the water go at low tide? 11-3843

Why are we sure that pure water has no taste? 14-5225

Why do we put a spoon in a glass before pouring in hot water? 9-3354

Why does a light go out in water, but flare up in gasoline? 10-3729

Why does a wet plate get dry if we leave it alone? 3-981

Why does boiling water feel cold when we put our hand in it? 14-1950

Why does boiling water make bubbles? 2-686

Why does hot water clean things better than cold? 4-1355

Why does hot water crack thick glass more easily than thin? 13-4828

Why does hot water take up more room than cold? 16-5960

Why does ink stain when water does not? 6-2352

Why does Mother put a marble in the kettle? 5-1809

Why does not oil mix with water? 11-3842

Why does not sea water make fishes thirsty? 7-2360

Why does not the water fall out of a revolving pail? 5-1609

Why does oil float on the surface of water? 6-2125

Why does shallow water freeze first? 8-2874

Why does the stream run faster in the middle? 12-4399

Why does water always seem shallower than it is? 2-688

Why does water find its own level? 4-1229

Why does water not stand still? 10-3730

Why is a running stream purer than a stagnant pool? 14-5084

Why is it that the sea does not freeze? 11-3978

Why is the surface of water always level? 16-5844

Water avens, *see* Avens, Water

Water-bear (tardigrada)

can live without food, 2-457

Water boatman, insect, 18-6731

Water crowfoot, *see* Crowfoot, Water

Water-cups, *see* Trumpets

Water dropwort, Hemlock, *see* Hemlock water dropwort

Water-elder, note and picture, 14-4972

Water figwort, *see* Figwort, Water

Water-fleas, 16-5956

Water-gas, how made, 2-636, 638

Pictures, showing manufacture, 2-640-43

Water-hemlock, flower

description, 16-5880

Pictures (in color), 13-4878; 16-5882

GENERAL INDEX

Water lilies, plants

account of, 16-5872
description, 4-1278
notes on, 16-5870
seeds spread by herons, 11-4006
yellow pond lilies, 19-6928, 6930
Poem about, Dog and the Water-Lily, by William Cowper, 7-2528

Pictures, 16-5870

yellow water lily (in color), 16-5883

Water mint, *see* Mint

Water-nymph, submerged fresh-water plant, 4-1278

Water parsnip, *see* Parsnip, Water

Water-pheasants, birds, 11-4012

Water-pipes, why burst in thaw, 4-1450

Water plantain, *see* Plantain, Water

Water power

* Water power of the world, 15-5429-30
how changed to electrical energy, 15-5429-30
in countries and continents
Africa, 15-5430
Canada, 1-108-10
Europe, 15-5430
Italy, 13-1572
New Zealand, 7-2576
South America, 15-5430
United States, 15-5430
largest user of, 10-3399
Northeastern states, 11-3774
Southern states, 14-4889
super-power plan, 11-3774
relation to manufactures, 9-3212
sea as source of
tides, use of, 18-6558
waves of sea, use of, 15-5433
use in mining, 15-5433
used by Romans in mills, 8-2796
value of, 7-2538
water pressure, use of, 15-5432
Pictures, 15-5429-38

Water-scorpion, insect

Picture, (in color), facing 18-6721

Water-shield, plant, 19-6930

Water-silver, *see* Quicksilver

Water soldier, plant, 16-5872

Water-spout

Question about, What is a water-spout?

5-1809

Picture, in Black Sea, 8-2665

Water supply of N. Y. city, * 14-5055-60

Water thyme, *see* Thyme, Water

Water-tower, notes and pictures, 9-3165

Water-turkey, name for anning, 11-3882

Water-violets, note and picture, 16-5879

Picture (in color), 16-5883

Water-wheel for irrigation, 7-2543-44

Pictures and notes, 15-5431

largest in world, at Hamah, 7-2545

primitive one, Bulgaria, 14-4929

Watercress, plant, 7-2616

description, 16-5877, 5880

Pictures, 16-5877

beds growing near London, 7-2622

cutting for market, 7-2613

Waterfalls. Largest, height of

	Feet
Grand, Labrador.....	2,000
Sutherland, New Zealand.....	1,904
Upper Yosemite, California.....	1,436
Gavarnie, France.....	1,385
Takkakaw, British Columbia....	1,200
Vettis, Norway.....	950
Multnomah, Oregon.....	850
Kaieeteur, British Guiana.....	804
Rjukan, Norway.....	780
Middle Yosemite, California....	626
Voringefos, Norway.....	600
Skaeggadalsfos, Norway.....	530
Stirling, New Zealand.....	500
Victoria, Africa.....	400
Lower Yosemite, California.....	320
Lower Yellowstone, Montana....	310
Snoqualmie, Washington.....	268
Seven Falls, Colorado.....	266
Montmorency, Quebec.....	265
Shoshone, Idaho.....	210
Iguazu, Brazil.....	210
Twin, Idaho.....	180
Niagara, North America.....	159
Murchison, Africa.....	120
Upper Yellowstone, Montana....	110
Schaffhausen, Switzerland.....	100

highest in the world, 16-6480

Waterfalls (continued)

of Yosemite Park, 7-2282

Pictures, 3-775; 6-1957, 2173; 7-2541, 2579; 9-3049; 10-3405; 19-6841

Waterford. Capital, cathedral city, and port of County Waterford, England, near the mouth of the Suir. It has steamship connection with Bristol and Fishguard and exports dairy produce.

Waterhouse, J. W., British painter

Picture, Psyche's Garden (gravure), 9-3229

Waterloo, Battle of, 6-2096, 2208; 10-3572

Poems about

Eve of Waterloo, by Lord Byron, 8-2766

The Last Charge of the French at Waterloo, by Sir Walter Scott, 15-5522

Picture, 6-2096

Watermarks in paper, explanation, 5-1753

Watermelons, account of, 6-2062

Waterproofing of boats, directions for, 18-6645

Waterton, Charles, English naturalist

battle with snakes, 4-1530-31

Waterworks, *see* Water supply

Watling Island, West Indies, 19-7097

Watson, Homer, Canadian painter, 10-3701-02

Picture, Nut-gatherers in the Forest, 10-3701

Watson, John, author, 11-3897-98

Watson, Spencer, British painter

Picture, Isabel Pinkney (gravure), 8-2861

Watson, Thomas A., assistant to A. G. Bell, 17-6186

Watson, Sir William, English poet, 12-4233

See also Poetry Index for poem and note

Watson, Sir William, English scientist

electrical discoveries, 4-1246, 1248

Picture, portrait, 4-1243

Watt, James, inventor

builds flour mill, 8-2798

experiments with horse-power, 2-689

invented a steam engine, 5-1612

Picture, looking at steaming kettle, as a boy, 5-1613

Watt, electrical term

how named, and definition, 2-689

Watteau, Antoine, French painter, 5-1881

Pictures

A Girl Dancing (gravure), 5-1880

Embarkation for Cythera, 5-1883

Watts, George Frederick, English artist

as painter, 6-2236

as sculptor, 13-1854

Pictures (gravure)

Cardinal Manning, 6-2237

Sir Galahad, 19-6947

Watts, Isaac, hymn-writer, 12-4436

See also Poetry Index for poems and notes

Picture, portrait, 12-4439

Waugh, Edwin, *see* Poetry Index for poem and note

Waugh, Frederick J., American painter, 10-3456

Picture, Roaring Forties (gravure), 10-3459

Waverley novels, series by Sir Walter Scott

history of composition, 7-2626-30

quotations and summaries, 11-4069-78

Pictures, scenes from, 7-2625, 2628, 2629

Waves, *see* Hertzian waves; Radio waves; Sound

—waves; Waves of sea

Waves of sea

and wind, 14-5220

cause of, 8-2921

description of, 18-6437

giant force of, 7-2542

use for water power, 15-5433

Question about, Is every seventh wave a bigger one? 5-1811

Wax. Ordinarily a sticky substance secreted by bees and used to build honeycombs. It is thick dull yellow with a smell of honey. When purified it is white and plastic. It is lighter in weight than water. It is used in medicine, as modeling material, and for candies, etc. There are many other kinds of wax.

Waxberry, 14-5162, 5165

Waxbills, birds, 8-2972

Waxwings, birds, 9-3139

cedar waxwing, 13-1836

Picture, 9-3133

Way we have come, a summary of European paintings, * 9-3069-76

Wayfaring tree

Picture, fruit (in color), 11-4023

Wayne, Anthony (1745-96), American soldier born in Pennsylvania; served during the whole

GENERAL INDEX

Wayne, Anthony (*continued*)

Revolutionary War; captured Stony Point; member of Congress from Georgia, 1791-92; appointed commander-in-chief U. S. Army (1792), and defeated western Indians, 1794.

Picture, portrait, 4-1165

Wayside Inn, South Sudbury, Mass.

Picture, 12-4154

"We have met the enemy and they are ours," when said, 5-1704

Weakfish, 16-5780

Weald, The. Woodland district of England lying between the North and South Downs in Kent, Surrey and Sussex. From the time of the Romans to the beginning of the 19th century it was an important centre of the iron industry, vast numbers of trees being felled.

Wealth

* Wealth and what it is, 14-5243-46

* How wealth is created, 15-5357-60

* distribution of, 17-6091-94

* Spending and saving, 17-6359

definition of, 14-5243

effort to distribute fairly, in England, 7-2294, 2296

origin of word, 14-5246

quotation about, by John Ruskin, 14-5246

spending of, encourages trades of luxury, 17-6360-61

Wealth of Nations, by Adam Smith

effect in England, 7-2294

Weather of the Forest, * 16-5985-96

Wearin' o' the Green, author of, 10-3610

Weasel Family, animals, 3-872-73

Pictures, 3-868-70

Weather

foretelling, 3-1152

chemical weather-glass, how to make, 12-4502

devices for, how to make, 10-3625

See also Barometer

* how differs from climate, 8-2663-68

* rain, 8-2921-24

* relation to atmospheric pressure, 15-5287

* why the seasons come and go, 8-2791-94

Question about. How does seaweed tell us what the weather is going to be? 8-2718

Weather Bureau, United States, 5-1792

Weather-glass, chemical, how to make, 12-4502

See also Barometer

Weather-vane

directions for making, 10-3625-26; 19-6959

use of, 18-6691

Weatherly, Frederic Edward, *see* Poetry Index

for poems and notes

Weaver birds, 8-2970, 2972

Pictures, 8-2971

home of, 8-2967

Picture (in color), 10-3624

Weaving

baskets, reed, 3-897

in mill, with pictures, 14-5175-76

linen, 9-3318, 3320

loom for hand weaving, how to make, 14-4997-98

power loom, invention of, 19-7204

See also Jacquard loom

Pictures, 14-5175-76

automatic looms, 14-5166

in home, Quebec, 8-2955

in woolen factory, 15-5587

loom in mill, 9-3322

silk, various methods, 15-5318-19

Weber, Karl Maria von, German musical composer

life and work, 19-6920, 7150

Picture, portrait, 19-6912

Webster, Daniel, American statesman

* life, 10-3492, 3494

reply to Hayne, 10-3494

Picture, portrait, 10-3493

Webster, Noah (1758-1843). The maker of the well-known American dictionary bearing his name.

Webster, Thomas, British painter

Pictures, Dame's School, 14-5251

Village Choir, 18-6697

Webster-Ashburton Treaty, between England

and U. S., 11-3340

Weddell, James, antarctic explorer, 14-5090

Picture, portrait, 14-5089

Wedding rings

Question about. Why do all married women wear wedding rings? 7-2610

Wedgwood, Josiah, English potter, 5-1664

gave Coleridge annual income, 7-2354

Wednesday, how named, 12-4202

consecrated to Mercury, 9-3227

Weeds

* account of, 9-3391-96

* Roadside plants and weeds, 15-5387-94

annuals among weeds, 9-3393

harm done by, 9-3391-92

names of common weeds, 9-3392-93

number on a square yard, 9-3394

spreading of, 4-1275

* *Pictures*, 15-5387-96

one year's growth, London lot, 9-3395

wild lettuce and ragweed, 9-3396

Week, division of time made by men, 1-238

Weevers, fishes, 16-5776

Pictures, 16-5777

viper weever (in color), 16-5782

Weevil. A snout beetle of the suborder *Rhyn-cophora*. The snout is often longer than the rest of the body. Varieties of weevils are among the most destructive parasites known to the agriculturist, and the worst of the tribe is the Mexican cotton-boll weevil.

Wegmann, F., inventor, 19-7214

Welhaven, John, Norwegian critic, 19-7012

Weight

how differs from mass or density, 2-386;

14-4903, 5036

measurement of, 14-4902-03

specific gravity and, 14-5036-38

Questions about

Do things weigh heavier or lighter when hot or cold? 11-3977

Do we get a pound of ice from a pound of water? 14-5086

Does a cloud weigh anything? 10-3580

Why is a needle no heavier when magnetized? 11-3976

Weight-height-age tables, for children, 9-3251

Weights and measures

* How things are measured, 14-4901-03

in cooking, 1-234

Questions about

How is a horse measured? 6-2252

What is a baker's dozen? 16-5961-62

See also Tables of weights and measures, 20-7858

Weigls, Robert, sculptor

Picture, statue of Beethoven, 19-7076

Wei-hai-wei, Shantung, leased by British, 9-3186

Weimar, Germany

Picture, Goethe's house, 17-6411

Weir, J. Alden, American painter, 10-3455

Weisenthal, Charles F., and invention of sewing machine, 19-7212

Welding, by electricity, 16-5948

Welhaven, Johan, Norwegian writer, 19-7012

Well, toy, how to make, 15-5334

Welland Canal, 13-4787

public property, 14-4484

Picture, 13-4789

Wellesley, Arthur, duke of Wellington, *see* Wellington, Arthur Wellesley, duke of

Wellesley College

Picture, Founders' Hall, 12-4313

Wellington, Arthur Wellesley, duke of

in Napoleonic Wars, 6-2205-08

Pictures, portrait, 6-2199

portrait, as a boy (graveure), 6-2209

portrait, with mother, 15-5618

after Waterloo, 6-2198

on his march to Waterloo (graveure), 6-2211

Wellington, capital of New Zealand, 7-2574, 2576

Picture, 7-2580

Wells, Herbert George, English author, 11-3899

Wells, H. T., artist

Picture, Queen Victoria, 7-2292

Wells, Horace, used nitrous oxid when pulling teeth, 8-2729

Wells, England

Picture, cathedral, 16-5963

Welsbach, Auer von

developed use of gas mantles, 3-993

Welsbach lights, 2-636

Welsh. A Celtic people with some Iberian blood who were formerly known as Cymri. The mountains of Wales formed a refuge and a rallying-ground for the Gaels and Brythons who fled from the Teutonic invaders of England. They have the typical Celtic temperament: they are mercurial, vehement, voluble and eloquent,

GENERAL INDEX

Welsh (continued)

imaginative and quick-witted, but lack the steadfastness typical of the English.

Wembley, Imperial Exhibition of 1925, 7-2299

exhibit of Canadian art, 14-5078

Wenceslas, King, carol about, 3-844

Picture, 3-842

Wentworth, Thomas, *see* Strafford, Earl of

Wentworth, William Charles, Australian explorer, 3-862

Wergeland, Henrik, Norwegian poet, 19-7012

Picture, portrait, 19-7009

Wesley, Charles, as hymn-writer, 12-4436

See also Poetry Index, for poems and notes

Picture, portrait, 12-4439

Wesley, John

Pictures, portrait, 12-4439; with parents, 15-5615

Wessel, John Herman, Norwegian dramatist, 19-7011

West, Benjamin, American painter, 9-3325-26

Pictures

Hagar and Ishmael, 9-3331

Portrait of Charles Willson Peale, 9-3329

West, Charles, submarine cable of, 12-4293

West Indies

* account of, 19-7097-7104

British possessions in, 9-3190-91

Dutch possessions in, 19-7104

French possessions in, 19-7104

government, 19-7104

influence of United States in, 19-7100-02, 7104

West Indies, Danish, bought by U. S., 10-3594; 19-7104

West Jersey, American colony, 2-552

West Point Military Academy

* West Point and Annapolis, 18-6701-10

appointments, 18-6702

famous graduates, 18-6701-02

fort in Revolutionary times, 18-6701

Pictures, 18-6690, 6701-06, 6710

West Virginia, Mountainous eastern state;

area, 24,170 square miles; capital, Charleston.

Largest city, Wheeling. Coal, iron and petroleum are the chief minerals. Lumbering, the

manufacture of iron and steel and glass are also important. Abbreviation, W. Va. Nickname,

"Panhandle State" or "Mountain State."

Flower, rhododendron. Motto, "Montani semper liberi" (Mountaineers always freemen). Separated from Virginia in 1863.

described in Southern States, 13-4517-28;

14-4889-4900

a part of Virginia, 7-2432

John Brown in, 7-2430

made a state, 11-3492

produces coal and petroleum, 9-3210

Pictures

flag (in color), 19-7191

fish hatchery at White Sulphur Springs,

11-4059

Harper's Ferry, 13-4521

mining coal, 3-798

Western anemone, *see* Anemone—western

Western Australia, state, 7-2470

Western States

* history and description, 18-6425-36; 19-6841-

50

Lewis and Clark exploration, 5-1703; 18-6426

Westinghouse, George

invention of air-brake, 19-7212

Westminster Abbey, London, account of, 12-4352-

53; 16-5972

and Edward I, 5-1679

chapel of Henry VII, 5-1813

first building by Edward the Confessor,

4-1436

Henry III began rebuilding, 5-1571-72

Pictures, 12-4352

Westphalia, Peace of, 1648, 11-3964

Westward Ho, by Charles Kingsley,

* summary and quotations, 14-5027-34

Westwood, Thomas, *see* Poetry Index for poems

and notes

Wetherald, Ethelwyn, Canadian author, 14-5110

Wetherell, Elizabeth, *see* Warner, Susan

Wetherill, Richard and Alfred, discovered cliff-

dwellings, 7-2290

Wethersfield, Conn., founding of, 2-554

Weyden, Roger van der, Flemish painter, 4-1225

Pictures, The Annunciation, 4-1220

Virgin and Child, 4-1223

Weyler, Valeriano, Spanish general

oppression of Cuba, 10-3590

Weyman, Stanley J., English author, 11-3898

Weyprecht, Carl, arctic explorer, 13-4712

Whale-lice, crustacean on whale, 6-2216

Whales

* account of, 6-2213-20

ancient belief about, 1-356, 358

destruction of a ship by, 4-1189-90

enormous size of, 6-2214

story about. *Moby Dick, by Herman

Melville, 15-5401-08

Pictures, with notes, 6-2215-19

sailors encamped on back, 1-356

Whaling

influence on antarctic exploration, 14-5089-90

* story of Moby Dick, by Melville, 15-5401-08

Wharton, Mrs. Edith, novelist, 14-5009

What a Great City Does for its Children,

* 15-5621-28

What climate means to us, * 8-2663-68

What is happening in the sky, * 11-4037-42

What is wrong? game, 18-6639

What man can do with a plant, * 4-1469-75

Wheat

* history, development and varieties, 4-1469-74

* history, plant structure, and production,

5-1754-63

and climate, 5-1760

as food for man, 7-2423-24

description of, for game, 16-5771

diseases and pests, 5-1757, 1762

fertilization of flowers, 5-1758

France, production of, 11-3818

grinding, invention of roller process, 19-7214

growth from seed, and parts of plant, with

pictures, 5-1754

machinery and implements for cultivating,

15-5278, 5280

seed, parts of, 5-1754, 1756

spring wheat compared with winter wheat,

15-5278

structure of a grain, 8-2795

supply, decrease in proportion to population

7-2423

United States crop, 8-2678

production in North Central states, 15-5274,

5278-80

varieties, 4-1470-71, 1474; 5-1758, 1760

winter wheat, 5-1756, 1758

in Kansas, 15-5278

world production, 5-1760

yield, modern increase, 5-1756

yield per acre, 15-5278

See also Flour and flour mills

Question about. Why do farmers grow clover

one year and wheat the next? 4-1453

Pictures

germination, 4-1471-73

grain, diagram, 5-1754

harvesting and milling, 1-374-78

parts of plant, and cultivation, 5-1754-63

Wheat-rust, account, with *pictures*, 5-1757, 1762

Wheatears, birds, account of, 9-3140

Picture (in color), 9-3129

Wheatstone, Sir Charles, inventor, 17-6237

Pictures, portraits, 17-6239, 6243

Wheelbarrow, directions for making, 9-3253-54

Question about. Why has a wheelbarrow only

one wheel? 8-3014, 3016

Wheeler, Seager, developed varieties of wheat,

4-1474

Wheeler, William A., vice-president of U. S.

Picture, portrait (graveure), 11-3948

Wheels

Questions about

Why are the spokes of a mangle wheel

curved? 7-2611

Why cannot we see the spokes of a wheel

when it is going very fast? 15-5518

Why has a traction engine grooved wheels?

7-2486

Why has a wheelbarrow only one wheel?

8-3014, 3016

Wheelwright, Rowland, British painter

Picture, Enid and Geraint (graveure), 19-6945

Whelks, molluscs, 19-6889-90

Pictures

eggs and shell, 19-6881

shells, 19-6887; (in color), 19-6893

When Johnny Comes Marching Home, song

origin of, 18-6511

When the fire alarm rings, * 9-3157-69

Whetstones

oilstones, description and care, 12-4263

GENERAL INDEX

- Whey**, formed from milk, 7-2324
- Whig Party**. The name Whig was used before and during the Revolution to indicate those who opposed British rule, but about 1834 was revived as a name for those opposed to President Jackson. The party elected Harrison in 1840, and Taylor in 1848, but split upon the question of slavery.
- Whimbrel**, bird
Pictures, 11-4011; (in color), 8-2900
- Whinberries**, see Whortleberries
- Whinchat**, bird
Pictures, 9-3137; (in color), 8-2900
- Whip-poor-wills**, birds, 9-3372; 13-4830
- Whirlpool**
Question about. What makes a whirlpool? 17-6284
- Whirlwind**
 box that makes, 4-1398
 explanation, 4-1398; 18-6692
- Whisky-jack**, name for Canada or Oregon jay, 13-1830; 14-5136
- Whispering**, explanation of, 10-3561
Question about. Why can we hear a whisper across the dome of St. Paul's? 4-1450
- Whistler**, James A. McNeill, American painter and etcher
 life and work, 10-3449-50
Pictures,
 Portrait of his Mother, 10-3446
 White Girl, 10-3446
- Whistles**, directions for making, 11-4085
Question about. Why does the whistle change as the train comes nearer? 11-4132-33
- White**, Gilbert, English naturalist and writer on natural history; born, Selborne, Hampshire, 1720; died there, 1793.
- White**, John, and colony at Roanoke, 17-6333-37
Pictures illustrating Indian life, 17-6334-36
- White**, Stewart Edward, novelist, 14-5010
- White alder**, see Clethra
- White ants**, see Termites
- "White coal"**, term for water power, 15-5429
- White elephant**. A term applied to a distasteful or useless gift, or to one involving more trouble and expense than it is worth. In old days the kings of Siam used to present a white elephant to a courtier with the object of ruining him.
- White House**, Washington
 account of, 5-1538-39
 burned in War of 1812, 2-395
 famous ladies of, 2-391-96
Pictures, 5-1538; (graveure), 11-3945
 first White House, 2-395
- White Mountains**, N. H., 12-4148
Pictures, 7-2422
- White River**. American river, rising in north-western Arkansas; flows into the Mississippi River. 800 miles.
- White-rot**, marsh pennywort
 note and picture, 16-5731
- White Sea**. Deep gulf in the coast of Arctic Russia, containing the port of Archangel. Its fisheries are important, but it is icebound for the greater part of the year.
- White Ship**, wreck of, 5-1568; 12-4223
- White Strand Bay**, Newfoundland, terminal of first Atlantic cable, 12-4294
- White Tower**, London, 12-4354
- White walnut**, name for butternut, 12-4512
- White wood**, wood of tulip tree, 12-4510
- Whitebait**. *Picture*, 16-5779
- Whitebeam**, tree, 12-4282
Picture, 12-4331
- Whitefish**. One of the most important fishes of the Salmon Family. About twenty species are found in North America, Europe and Asia. The common whitefish found in the Great Lakes of North America is of great commercial importance.
 See also 15-5635
Picture and note, 15-5631
- Whitehall Palace**
 Inigo Jones' work on, 18-6490
- Whitehead**, Robert, inventor, 1-197
- Whitethorn**, see Hawthorn
- Whitethroats**, birds, 9-3277
Pictures (in color), 9-3132, 3283
- Whiteweed**, name for oxeye daisy, 15-5390
- Whiting**, Edmund, see Poetry Index for poem and note
- Whiting**, William, hymn-writer, 12-4440
- Whittings**, name given to kingfishes, 16-5780
Pictures, 16-5777; (in color), 16-5783
- Whitman**, Walt, American poet, 13-4729-30
 See also Poetry Index for poem and note
Picture, portrait by J. W. Alexander, 13-4729
- Whitney**, Eli, inventions of, 19-7205
 invention of cotton-gin, 6-1912
Picture, portrait, 19-7201
- Whitney**, Gertrude Vanderbilt (Mrs. Harry Payne), American sculptor
Picture, Memorial at St. Nazaire, 17-6291
- Whitney**, Mt. Highest mountain in the United States, in the Sierra Nevada. 14,501 feet.
- Whittier**, John Greenleaf, poet, 13-4727-28
 shoemaker in youth, 18-6442
 See also Poetry Index for poems and notes
Picture, portrait and note, 13-4724
- Whittington**, Dick, and his cat (story), 2-758-59
Picture, 2-759
- Whittlesley**, Major, and "Lost Battalion," 7-2319-20
- Whortleberries**, or whortle, 11-4019; 13-4776;
 15-5601, 5608
Pictures, 15-5604
 fruit (in color), 11-4021
- Whydahs**, birds, 8-2970, 2972
 belong to Weaver family, 8-2970
Pictures, 8-2969, 2976
- Wichita**, Kansas
Picture, 17-6045
- Wickham**, H. A., brought seeds of rubber plant to England, 4-1408
- Wicliffe**, John, see Wyclif
- Widgeons**, ducks, 11-3888
Picture (in color), 8-2900
- Widmer**, Leonard, see Poetry Index for poem and note
- Widows** in India, burning of, 8-2700
- Wieland**, Christopher Martin, German author, 17-6268
- Wielickza**, Poland
 salt mines, 3-926; 13-4688
Picture, 3-929
- Wiggin**, Mrs. Kate Douglas, author, 14-5015-16
Picture, portrait, 14-5016
- Wigglesworth**, Michael, wrote Day of Doom, 12-4447
- Wight**, Isle of. Island off the coast of Hampshire, England, from which it is separated by the Solent and Spithead. The climate is mild, and there are many popular watering-places, including Shanklin, Sandown, Ventnor, Ryde and Cowes. Area, 150 square miles; chief town, Newport. The Romans knew it as Vecta or Vectis, a Latinized form of the name, Wit.
- Wigwam**, Indian tent. *Picture*, 16-5835
- Wilcox**, Mrs. Ella Wheeler, see Poetry Index for poems and notes
- Wild**, Frank, with Shackleton in antarctic, 14-5101
- Wild fruits of the countryside**, * 11-4019-28
- Wild plants**. For special plants, see their names:
 Wild thyme is under Thyme
- Wilde**, Oscar
 Remarkable rocket, story, 14-5260
 Selfish giant, story, 4-1187-89
- Wildebeeste**. *Picture*, 18-6813
- Wilderness**, Battle of, 7-2440
- Wilkes**, Charles, antarctic explorer, 14-5090
 in Samoa, 10-3592
Picture, portrait, 14-5089
- Wilkie**, Sir David, British painter
Picture. Village School, 14-5251
- Wilkins**, Capt. Sir George H., Australian aviator, 1-184; 13-4723; 14-5101
- Wilkins**, Mary E. (Mrs. Freeman), American author, 13-4819
- Wilkins**, William, British architect
 built National Gallery, London, 12-4361
- Will or Last Testament**. A document containing the expressed wish of the person writing with regard to the disposal of his or her property after death.
- Willard**, Mrs. Emma C., American educator
 life and influence, 14-5268
- Willard**, Emma Hart wrote Rocked in the Cradle of the Deep, 10-3608
- Willard**, Frances Elizabeth
 life and work, 14-5271
 statue in Capitol, 5-1534
- Willett**, William, and daylight-saving, 17-6289
- William**, Prince, son of Henry I of England
 heroism and death, 12-4223

GENERAL INDEX

- William I, the Conqueror**, king of England and the church, 8-2845
 * conquest of England and reign, 4-1436, 1439 fleet of, 11-3916
Poem about, William the Conqueror, by Charles Mackay, 8-2903
Pictures, scenes in his life, 4-1435, 1438-39
- William II (Rufus)**, king of England and Anselm, 8-2845-46
 death of, 5-1566
 robbed the church, 8-2845
- William III**, of Orange, king of England and Ireland, 8-2934
 reign of, 6-1981
- William I**, German emperor, 11-3972
Picture, proclaimed emperor, 12-4169
- William II**, German emperor
 reign of, 11-3974
- William I**, called the Lion, king of Scotland, 5-1568, 1570
 imprisonment, 12-4208
- William and Mary College**, age of, 14-4890
 history, 12-4308
- William of Orange**, called the Silent
 life and character, 15-5560, 5562
- William of Salicet**, Italian physician, 8-2725
- Williams, Roger**
 driven out by Puritans, founds Providence, 2-550
- Williamsburg, Va.**
Picture, 5-1701
- Williamsburg Bridge**, N. Y. city, 1-29
- Williamson, Curtis**, Canadian painter, 10-3703
- Willoughby, Sir Hugh**
 expedition to Polar seas, 8-2982
Picture, portrait, 8-2977
- Willow-herb**, plant, 18-6660
Pictures, 18-6663; (in color), 14-4987; 16-5881
 marsh willow herb (in color), 16-5881
- Willow-pattern plate**, story of, 4-1532
- Willow trees**
 catkins of, 17-6273
 notes and pictures, 11-4101
- Wills, William John**, Australian explorer, 3-864
- Wilmot Proviso**. A proviso attached to the bill for the purchase of Mexican territory in 1846 and providing for the prohibition of slavery in this territory. The bill and proviso passed the House of Representatives but did not pass the Senate. David Wilmot of Pennsylvania was the promoter of the proviso.
- Wilson, Alexander**, ornithologist, 19-7051-52
Picture, portrait, 19-7051
- Wilson, E. A.**, antarctic explorer, 14-5092, 5096
Picture, portrait, 14-5100
- Wilson, Henry**, vice-president of U. S.
Picture, portrait (gravure), 11-3948
- Wilson, Richard**, British painter, 6-2229-30
- Wilson, W. E.**, made calcium carbide, 16-5946
- Wilson, Woodrow**, president of U. S.
 administration, 8-2672, 2674; 11-3949
 * life, 19-7198, 7200
 outline of, 11-3954
Pictures,
 portrait, about 1890, 19-7198
 portrait (gravure), 11-3947
 birthplace, in Staunton, Va., 19-7195
- Wilson Dam**
Picture, under construction, 7-2312
- Wilson's thrush**, 13-4839
- Winchester**. Ancient Roman settlement, and later capital of Wessex, England, on the Itchen. Capital of Hampshire, it is famous for its splendid Norman and Gothic cathedral, the longest in England.
- Winchester Cathedral**, England
 diver's work on foundations, 12-4186, 4188
 foundation relaid, 13-4596
Picture (gravure), 16-5976
- Wind**
 * How sun and wind made the hills, 2-629-34
 and convection currents, 15-5427
 and formation of clouds, 8-2922
 distributes heat over earth, 8-2666
 effect on sound, 2-586
 in mythology, 9-3233-34
 influence on rain, 8-2794, 2923
 seed scattered by, 3-1086-87
 toy to measure wind, 4-1391
 trade winds, 3-878; 8-2666, 2792, 2794
 work in deserts, 7-2421
Poems about
 The Apple Winds, by W. H. Ogilvie, 18-6651
- Wind**—*Poems about (continued)*
 Leaves and the Wind, by George Cooper, 19-6990
 Ode to the West Wind, by P. B. Shelley, 11-4113
 The Wind and the Moon, by George MacDonald, 16-5711
 Wind in a Frolic, 1-228
Questions about
 How do ships sail against the wind? 2-455-56
 How is the wind used for land transport? 2-456
 What do we mean by the trade winds? 3-878
 What is the wind like on a mountain-top? 16-5746
 What makes the wind whistle? 11-3841
 Why are some winds warm and some cold? 18-6692
 Why does the wind blow? 18-6691-92
- Wind Cave**, South Dakota, a national park, 7-2291
- Windermere, Lake**. Largest and one of the most beautiful of the English lakes, on the border of Westmoreland and Furness. Drained by the Leven, flowing into Morecambe Bay, it covers about 6 square miles, and is about 10 miles long and a mile broad; its shores are steep and beautifully wooded.
- Windflower**, see Anemone; Pasque flower
- Windhoek**, capital of Southwest Africa, 9-3052
- Windmill**. A mill or machine moved by the wind and used for grinding flour, pumping water, etc. A windmill has a tall frame bearing a horizontal windshaft attached to a wind wheel or sails. This is connected by gearing to a vertical pump-rod or other machinery. The turning of the sails by the wind starts motion that passes into motive power to run the machinery. toy windmill, how to make from paper, 3-902
- Window box**, how to make, 2-513-14
- Window-curtains**, directions for making, 17-6387-88
- Window shades**, how to repair, 10-3771
- Windpipe**, part of body, 4-1328
- Winds**, see Wind
- Windsor**. Berkshire market town containing Windsor Castle, the chief English royal residence. Founded by William the Conqueror, this contains the beautiful Gothic St. George's Chapel, and has a splendid park.
Picture, 18-6488
- Windsor**. Port of Ontario, Canada, standing on the Detroit River, opposite Detroit. It has considerable manufactures and a large transit trade.
- Windsor, Conn.**, founding of, 2-554
- Windsor chairs**, 18-6774
Picture, 18-6767
- Windward**, meaning of term, 14-5003
- Windward**, ship in arctic exploration, 13-4714
- Windward Islands**, among British possessions in the West Indies, 9-3190
- Wine**
 French production, 11-3818
 yeast causes fermentation, 5-1628
- Winfrid, St.**, see Boniface
- Winged Victory**, see Victory, statues of
- Wings** of birds, variations, 14-5005
- Winkelried**, Arnold von, Swiss hero, 16-6004
- Winking**, washes the eye, 1-73-74
- Winks**, game, 8-2745
- Winnipeg**. Capital of Manitoba and third largest city in Canada. Founded less than 100 years ago, it has become the grain market of the prairie provinces, and is an important distributing and manufacturing centre.
- Winnipeg, Canada**
 on site of Fort Garry, 4-1489
Picture, Provincial Legislative Building, 5-1837
- Winnipeg, Lake**. Lake in Manitoba, Canada, covering 9,400 square miles. It receives the waters of Lakes Winnipegosis and Manitoba and the Saskatchewan River, and is itself drained by the Nelson River, which flows into Hudson Bay. geological history, 1-159
- Winsor, or Winsor, F. A.**, and gas-lighting, 3-992-93
- Winter**
 * cause, 1-235-39
 why days are shorter, 8-2792
 plants in winter, 2-504, 510
 * sports and games of, 10-3693-98

GENERAL INDEX

Winter (continued)

- Poems about*
 December, by J. M. Gibbon, 15-5422
 Winter Song, by Shakespeare, 6-2152
Question about. Why do trees not die in winter like flowers? 10-3580
Winterberry, belongs to holly family, 13-4783
Wintergreen, plant, 18-6570-71
 of Pacific coast, 19-6937
Picture, 18-6571
Winter's Tale, play by Shakespeare
 story of, 16-5756-57
Picture, 3-982
Winther, Christian, Danish poet, 19-7011
Winthrop, John, governor of Massachusetts Bay, 2-548; 10-3487
 wrote History of New England, 12-1446
Picture, portrait, 12-4445
Wire. A piece of metal pulled or drawn out into a slender bar usually round in shape. Formerly wire was made by beating the metal on a grooved anvil, but nowadays it is drawn out by powerful machinery. Silver, platinum, copper, bronze, brass, iron and steel are the metals used for making wire.
Wire ropes, 11-3792
Wire that runs under the sea, * 12-4293-4300
Wireless telegraphy, see Radio telegraph
Wireless telephony, see Radio telephone
Wireworms, larvae of beetles, destructiveness, 18-6628-29
Wisconsin. Forest and prairie state bordering the Great Lakes; area, 56,066 square miles; capital, Madison. Wheat-growing, dairying, lumbering and cattle-raising are important. The manufactures are large and varied. Milwaukee is the largest city and the chief commercial centre. Abbreviation, Wis. Nickname, "Badger State" or "Copper State." Flower, violet. Motto, "Forward." Wisconsin is an Indian name. First settlement, Green Bay, about 1669.
 described in North Central States, 15-5273-84; 17-6037-48
 early history (arranged chronologically)
 explored by Joliet and Marquette, 18-6632-33
 claimed by France, 3-780
 joined to Quebec, 3-941
 part of Northwest Territory, 6-1908
 statehood granted, 11-3940
 in dairy belt, 15-5282
 leather production, 17-6044
Pictures
 along the Mississippi, 16-5659
 City Hall, Milwaukee, 17-6045
 Dells of the Wisconsin, 15-5283
 flag (in color), 19-7190
 Grand Avenue, Milwaukee, 17-6045
 Marquette statue, 18-6632
 St. Croix River, 15-5283
 University of, 12-4315
Wisconsin, University of
Picture, Bascom Hall, 12-4315
Wisconsin River. American river, rising in northern Wisconsin. Flows into the Mississippi River. 400 miles.
Wishbone, toy made from, 15-5595
Wishes
Poem about. Wishing, by E. W. Wilcox, 7-2528
Wister, Owen, novelist, 14-5007
Picture, portrait, 14-5008
Wisting, Oscar, Polar explorer, 13-4722
Wit and humor, see Humor
Witch hazel, shrub, 13-4783
Witchcraft. The business or art of a wizard or a witch; extraordinary or supernatural power which people were once supposed to obtain by entering into league with the devil. Only ignorant people believe in witchcraft now.
Wither, George, see Poetry Index for poem and note
Wittenberg. Old German town on the Elbe, famous for its associations with Luther. It was on the door of the Schloss-Kirche that he nailed his theses, and in it he and Melancthon are buried.
Woad, plant, produces dye, 9-3152-53
Pictures, 9-3155
 flower (in color), 14-1989
Woden, or Odin, Norse god, 12-4202
Wöhler, Friedrich, made calcium carbide, 16-5946
Wif, game, 8-2741
Wolfe, Charles, see Poetry Index for poem and note
Wolfe, James, general
 capture of Quebec, 2-683; 3-783-84; 6-2100
 at capture of Louisbourg, 3-782
Wolframite, foundation of tungsten, 16-5939
Wolsey, Thomas, cardinal
 and Henry VIII, 5-1816
 Fall of Cardinal Wolsey, from Shakespeare's Henry VIII, 11-3928
Wolverine, animal, called American glutton, 3-873
 losses caused by, 12-4341
Picture, 3-869
Wolves
 * account of, 2-597-600
 distribution, 2-598-99
 fables about, by Æsop
 Boy who cried "Wolf," 6-1969
 Dog and the wolf, 17-6323
 Wolf and the kid, 1-58
 Wolf in sheep's clothing, 2-540
 story about, race with the wolves, 9-3067-68
 Tasmanian, 7-2509
 toy, how to make, 2-511-12
Pictures, 2-599, 601, 602; 14-4900
 gray or timber wolf, 12-4342
 Tasmanian wolf (graveure), 7-2506
Wolves, Prairie, see Coyotes
Woman suffrage, see Woman—Suffrage
Woman's Christian Temperance Union
 and Frances E. Willard, 14-5271
Wombats, animals, 7-2509
Picture (graveure), 7-2507
Women
 education
 colleges in U. S., 12-4310
 in U. S., earlier periods, 14-5268
 * Kings and queens of Scotland, 12-4205-14
 more vitality than man, 5-1804
 not honored by Mohammedanism, 9-3098
 * St. Joan, 16-5819-21
 suffrage, leaders in U. S., 14-5268-69
 * Some famous ladies of the White House, 2-391-96
 * Two pioneer women (Elizabeth Fry and Florence Nightingale), 16-5699-5706
 * Women in the United States, 14-5267-72
 See also Motherhood; Mothers
Women in the United States, * 14-5267-72
Wonderful century, * 7-2293-2304
Wonders of the world, see Seven wonders of the world
Wood, Jethro, invented iron plow, 19-7211
Wood, Leonard, as governor of Cuba, 10-3590
Wood, defects in, 8-3024
 durability, table of, 10-3632
 elements in, 11-1096
 for paper, 3-1055-56
 pulp for paper-making, how made, 7-2446-52
 supply for, 7-2445
 wood-pulp production in Northeastern states, 10-3408
 furniture woods
 kinds used, 18-6768
 how to know furniture woods, 6-2048; 16-5982
 hickory, uses, 6-2276
 how made from cells of tree, 11-4096
 how to stain, polish and lacquer, 9-3119
 making a collection of woods, 16-5889
 oak, how to identify, 10-3631
 painting, directions for, 11-4088
 walnut, uses, 6-2276
 writing on, with ink, 18-6642
 See also Lumber and lumbering; Trees
 For list of main articles on Manual Training, see 20-7633-34
Questions about
 What causes wood exposed to dampness to rot away? 15-5620
 What makes a knot in a piece of wood? 12-4400
 Why does heat crack wood? 17-6289
 Why does wood warp in damp weather? 14-5085
 Why will a hammer break a stone when a piece of wood will not? 10-3477
 See also Forests; Lumber and Lumbering
Wood-basket, directions for making, 19-7082
Wood-block printing, directions, 2-617
 history, and directions, 15-5336
Wood-lice, 16-5956
Wood nymphs, plants, 18-6667
Wood partridge, name for Canada grouse, 13-4760
Wood-pulp, see Wood—for paper

GENERAL INDEX

Wood-runners, French Canadian trappers,
12-4337-39

Wood-sorrel, plant, 14-4973-74
description of, 18-6570
notes on, 14-4972; 18-6569
Pictures, 14-4972; 18-6569

Wood-wind instruments, 19-6899
position in modern orchestra, 19-7148

Woodcarving
German, 15th and 16th centuries, 13-4699
making toys with pocket knife, 13-6779-80
Woodchucks, account of, with picture, 3-1126

Woodcocks, birds, 11-4012; 14-5020
Pictures, 11-4011; (in color), 9-3283

Woodcuts, and invention of printing, 9-3382

Woodlarks, birds, 9-3134
Pictures, 9-3137; (in color), 9-3281

Woodpeckers
account of, 9-3365, 3368; 14-5133-34
golden-winged, *see* Flickers
of North America, account of, 13-4763-64
of southern U. S., 14-5022
Pictures, 9-3369
nest, 13-4765
Pictures (in color)

California woodpecker, facing 14-5140
downy woodpecker, 12-4369
great spotted woodpecker, 8-2900
green woodpecker, 9-3131
lesser spotted woodpecker, 9-3281
Lewis' woodpecker, facing 14-5140

Woodruff, flower
Picture, sweet woodruff (in color), 14-4988

Woods, *see* Forests and forestry

Woodstock, novel by Scott, note on, 11-4071

Woodworms, larvæ of tick beetle, 18-6629-30

Woodworth, Samuel, wrote Old Oaken Bucket,
18-6510

Wool

* Wool and its story, 15-5575-77
countries producing most, 15-5576

how different from hair, 15-5575

how to test, 5-1774-75

importance to mankind, 4-1369

in Australia, 7-2462, 2466, 2468

production, 4-1369-70

leading countries, 9-3208

See also sheep

* *Pictures*, showing production, shipping, manu-
facture, 15-5575-88

Wool manufacture
description of mill processes, 15-5585-88

in Canada, 15-5577

in England, 15-5576

established by Edward III, 5-1683

in U. S., 9-3214; 15-5576-77

Pictures, in woolen mill, 15-5585-88

Wool mat, directions for making, 6-2265-66

Woolworth Building, 18-6555

height of, 17-6208

Pictures, 18-6555; (gravure), 18-6688

showing elevators, 4-1214

Worcester, Mass., 10-3404

first cutlery factories in U. S., 4-1306

Worcester, Battle of, 6-1978

Worde, Wynkyn de, English printer, Caxton's
assistant and successor; born, probably Lor-
raine; died, London, about 1535.
succeeded Caxton, 9-3386

Words

Questions about

Can we think without words? 10-3578

How many English words do we use? 1-75

How many words has the English language?
16-5961

Wordsworth, Dorothy

and the Lake poets, 7-2354-57

quotation from journal, 7-2356

Picture, portrait, 7-2353

Wordsworth, William, English poet

* Wordsworth and his friends, 7-2353-58

See also Poetry Index for poems and notes

Pictures, portrait, with mother, 15-5616

with group of children, 7-2355

Work, Henry Clay, wrote Marching through
Georgia, 18-6513

Work

Poem about, Work, by E. B. Brownlow, 10-3480

Question about, Is it good to have to work?
17-6176

Workbench, how to make, 11-4013-14

accessories, how to make, 17-6262

Workbox, how to make, 2-515

World

* This great world of ours, 1-43-48
maps

with note, 1-45

food plants, 19-7247

showing parts known, different periods, 1-42

showing paths of eclipses of the sun, 16-5843

showing time zones, 16-5841

world transportation, 1-48

population, 5-1606

Questions about

Among the millions of stars are there worlds
like ours? 16-5840

Could we reach another world? 4-1353

Do changes go on in other worlds? 18-6692

How can we tell the number of days in an-
other world's year? 11-3977

See also Earth; Stars; *also* names of countries

World War, 1914-18

beginning of, 11-3974

aviation, effect of, 1-174-76

* heroes of, 17-6291-94

countries taking part, or influenced

Brazil, 19-7042

British Empire, men sent by, 7-2300

Canada, 4-1491

Japan, 2-566

Mesopotamia, 18-6669-70

New Zealand, 7-2576

United States, 11-3949

effects

* on map of Europe, 18-6457-63

on trade and business, 18-6486-87

origin, 17-6196

story of, Cher Ami, D.S.C., a carrier pigeon,
7-2319

Poems about

Cher Ami, D.S.C., by H. W. Farrington, 6-2151

For Justice, by B. F. Trotter, 15-5422

For the Fallen, by Laurence Binyon, 12-4272

In Flanders Fields, by John McCrae, 16-5924

The Warders, by F. G. Scott, 9-3271

Why I abandoned you, by Tom Kettle, 9-3110

World's Columbian Exposition, *see* Chicago—
World's Columbian Exposition

Worms, German city

Pictures,

cathedral, 8-3010; (gravure), 16-5724

Worms

earthworms and related worms, 19-7143-47

Poem about, The Worm, by Thomas Gisborne,
3-847

Question about, How is it that a worm lives
when cut in two? 1-187

Pictures, 19-7143, 7145

Wormwood, flower

Pictures (in color)

common wormwood, 14-4990

sea wormwood, 14-4982

Worry

Question about, Why do we worry? 17-6173-74

Worship, relation to art, 1-62

Worsted, differs from woolen cloth, 15-5577

Wotton, Sir Henry, *see* Poetry Index for poem
and note

Wouldhave, William, and invention of lifeboat,
19-7207

Woundwort, plant

marsh woundwort, 16-5877-80

Pictures

corn woundwort (in color), 15-5399

flower (in color), 13-4878

marsh woundwort, 16-5877

Wrangell Mts., Group of volcanic mountains in
Alaska, with Blackburn Peak, 16,140 feet, and
Wrangell, 14,005.

Wrasse, fish

Pictures, 16-5777; (in color), 16-5781, 5784,
5787-88

Wren, Christopher, English architect, 18-6491

* life and work, 12-4356-58

Picture, portrait, with father, 15-5617

Wrens, birds

account of, 9-3139, 3278; 13-4838-39

birds in wren family, 14-5025

blue, variety of flycatcher, 9-3280

furze wren, the Dartford warbler, 9-3278

in southern U. S., 14-5025

in western North America, 14-5139-40

Pictures, nest, 9-3137; 13-4765

Pictures (in color), 9-3131

Australian wren, 10-3623

GENERAL INDEX

Wrens—Pictures (continued)

- blue wren, 10-3623
- red-winged wren, 12-4369
- Seattle wren, facing 14-5140
- Wright, C. S.**, on searching party for Scott, in Antarctic, 14-5100
- Wright, Lemuel W.**, invented machine to make pins, 9-3042
- Wright, Orville**
 - invention of airplane, 1-172
 - Picture, in a glider, 1-173
- Wright, Mrs. Patience**, American sculptor, 14-4933
- Wright, Wilbur**, inventor of airplane, 1-172
- Wrinch, Mary (Mrs. George A. Reid)**, Canadian painter, 10-3709

Wrinkles

Question about. What is it that makes wrinkles in old people's faces? 14-4952

Writ of Assistance. In American history, a writ issued by a superior colonial court authorizing an officer of the crown to enter and search any premises, in the process of executing the acts of trade. In 1761 the attempt to use such writs was defeated but it was one of the abuses which led to the Revolution.

Writers, *see* names of authors; also names of literatures, *as*, American literature

Writers of the hymns, * 12-4435-40

Writing

- * How man learned to write, 10-3545-50
- cuneiform, 2-650, 652, 654
- in Tel-el-Amarna tablets, 2-654
- key discovered, 2-648
- games for learning, *see* Games, Educational
- picture-writing, ancient, 2-650-52
- telling stories with sticks, 1-231
- For list of helps in learning to write, *see* 20-7646

Questions about

- Who began talking and writing? 8-2871
- Why are old sign writings called hieroglyphics? 7-2486
- Why is it difficult to write on glass? 11-4133
- Why will pen and ink write on paper better than on a slate? 14-5087

Writing-board, directions for making, 2-749

Writing paper

Question about. How are the marks put into writing paper? 5-1753

Wrought iron, how made, and uses, 6-1938-39

Wrybills, birds, 11-4010, 4012

Wrynecks, birds, 9-3368

Picture, 9-3369; (in color), 9-3284

Württemberg. Third largest German state, between Baden and Bavaria. Stuttgart is the capital; other towns are Ulm, Reutlingen, Esslingen and Heilbronn.

on map, 11-3927

Wurzburg. Ancient cathedral and university city in northern Bavaria.

Wyant, Alexander H., American painter, 10-3448

Picture, Looking toward the Sea (graveure), 10-3458

Wyatt, Sir Thomas, and early English verse, 1-321; 3-1118

Wyclif, John, English writer and reformer, called the Morning Star of the Reformation account of, 1-304-05

translation of Bible, 1-305; 2-473; 5-1683

Wyle, Florence, Canadian sculptor, 14-5078-79

Picture. Girl with Grapes, statue, 14-5079

Wyoming. Rocky Mountain state; area, 97,914 square miles; capital and largest city, Cheyenne. On an average it is over 7,000 feet above sea-level. Stock-raising, sheep-raising and mining are the most important industries. Abbreviation, Wyo. Nickname, "Equality" (Suffrage Pioneer). Flower, Indian paintbrush. Motto, "Cedant arma togæ" (Let arms yield to the gown). Wyoming means "mountains and valleys alternating." First settlement, Cheyenne, 1867.

described in Western States, 18-6425-34;

19-6841-50

and Oregon trail, 18-6432

made a state, 11-3944

oil in, 18-6434

See also Yellowstone Park

Pictures

- Big Horn Hot Springs, 18-6436
- flag (in color), 19-7191
- Teapot Dome, 18-6436



X Y Z Correspondence. In American history the despatches and papers sent from France in 1793 by three American envoys, C. C. Pinckney, John Marshall and Elbridge Gerry, in which were shown the demands for bribes made by three Frenchmen, whose names were hidden under the initials X, Y and Z.

X-rays

- * account of, 16-5940-44
- and the atom, 12-4290
- discovery and use, 15-5484
- light produced by, 16-5809
- produced by induction coils, 16-5802

Pictures

- apparatus, 16-5941, 5945
- photograph of a frog, 16-5943
- Xanthos**, Asia Minor
 - Harpy tomb and Nereid monument, 15-5346
- Xavier, St. Francis**, Jesuit missionary
 - conversion by Loyola, 13-4869
 - in Japan, 2-564
 - Picture*, portrait, 13-4859
- Xenophanes**, Greek philosopher, 16-5750
- Xenophon**, Greek historian and general
 - retreat of the Ten Thousand, 3-1081; 14-5257-58
- Xerophytes**, class of plants, 16-5727
- Xerxes I**, king of Persia
 - invasion of Greece, 3-914, 916, 1078; 13-4584
 - sacked Athens, 11-3992
 - Picture*, crossing Hellespont, 3-917
- Ximenez de Quesada, Gonzalo**, *see* Quesada
- Xiphias**, *see* Swordfish



Yachting on ice, *see* Ice yachting

Yak, animal

in Tibet, 4-1263

Picture (graveure), 4-1267

Yakuts. The race dwelling around the river Lena, who are the typical representatives of the original Turki peoples. Of short stature, with dark and deeply sunk eyes, they more resemble the American Indians than the other Mongols. Only numbering some 200,000 they are a thriving and enterprising race, walking about lightly clad in the coldest regions of the habitable globe.

Pictures, 16-5851

Yale, Elihu, Yale University named for, 12-4308

Yale, Linus, Sr., lock-maker, 6-2022

Yale, Linus, Jr., lock-maker, 6-2022

Yale locks, 6-2022, 2026

Yale University, 12-4308-09

Picture, Phelps Hall, 12-4309

Pictures (graveure) 18-6687-88

Yams, roots, as food, 5-1624; 7-2624

Pictures, 7-2623; (in color), 8-2997

Yang-tse-Kiang, river in China

description, 2-422, 434, 436

Yankee Doodle, song, origin and variations, 18-6512

Yankees, origin and meaning of word, 15-5364-65

Yard, measure of distance, 14-4902

Yards on ship, explanation, 11-4086-87

Yarrow, weed

description, 15-5390-91

Picture, 15-5391

Yaupon, shrub, leaves used for beverage,

13-4783

Yawl, sailing vessel, rig of, and picture,

11-4086-87

Yawning

Question about. Why is it that yawning seems to be infectious? 14-5222

Yeames, W. F., artist

Picture, When did you last see your father? 13-4563

Year, definition of, 11-4132

caused by earth's movement, 1-238

Egyptian division of, 11-4132

GENERAL INDEX

Fear (continued)

Question about. How can we tell the number of days in another world's year? 11-3977

Yeast

experiment with bread-dough, 2-626
in making bread and alcohol, 2-559
uses, 5-1628

Question about. Why does yeast make bread rise and biscuits bubble? 18-6693

Picture. 2-557

Yeats, William Butler, poetry of, 12-4234

Yedo, or Yeddo, *see* Tokio

Yellow, color

Question about. Why does a thing go yellow with age? 14-5085

Yellow fever

* history, cause, and cure, 15-5488, 5490-91
Americans fought it in Cuba, 10-3590
in Canal Zone, 1-366

Yellow-hammer, woodpecker, 8-2976; 13-4763

Pictures

nest and eggs, 8-2971

European yellow-hammer (in color) 9-3129

Yellow jacket, name for jarrah tree, 12-4249

Yellow-rattle, parasitic plant, 1-332

Yellow Sea. Arm of the China Sea between China, Manchuria and Korea. Its name is due to the vast quantities of yellow mud brought down by the Hwang-ho.

and Korea, 2-561

on maps, 2-423, 563

Yellowbird, Summer, 13-4840

Yellowstone National Park

description, 2-729-33

Timber Land Reserve set aside by President

Harrison, 8-2804

Pictures. 2-728, 731-32

Yellowstone River, description, 2-733

Yemen, Arabia, 18-6676

Yenisei. Great river of central Siberia, rising in northern Mongolia and flowing into the Arctic. 2,800 miles long, it is navigable during the summer for the greater part of its course.

Yew trees

description, 11-4107; 13-4636

Pictures. 11-4107

fruit (in color), 11-4023

Yggdrasil. In Norse mythology, the tree whose branches spread above the heavens.

Yoke of a rudder, 14-5002

Yokohama. Chief port of Tokio and Japan, with steamship services to all parts of the world. Badly damaged in the earthquake of 1923, it is rapidly recovering, and exports much silk, coal, copper and tea.

earthquake of 1923, 2-568

Pictures. 2-561

earthquake disaster, 2-573

Yonkers. Northern suburb of New York, and important manufacturing city, noted for production of hats, carpets, rugs and machinery.

Yoritomo, Japanese ruler, 2-563

tomb of, 2-570

York, Cardinal, *see* Stuart, Henry Benedict

York, Canada (now Toronto)

burned in War of 1812, 5-1704

See also Toronto

York. Historic capital of Yorkshire, England, on the Ouse. Still surrounded by medieval walls, it has many picturesque streets and buildings, but its chief glory is its splendid Minster, with three towers of over 200 feet. Built on the site of a 7th-century church, it is famous especially for its stained-glass windows.

St. Helena's church, 5-1692

school, 8th century, 14-5248

York Minster, 16-5970

Pictures

York Minster, 8-3011; (graveure), 16-5973

The Shambles (graveure), 7-2303

York, Duke of

New York named for, 2-552

See also James II, king of England

Yorkists, English faction, 5-1686

Picture. In the Temple Garden, 5-1681

Yorkshire. Largest English county; area 6,077 square miles; capital, York. Watered by the Ouse, it is divided into East, West, and North Ridings, the West Riding being the centre of the British woolen industry and to a great extent of the steel industry. In the North Riding is the Cleveland iron-mining district, while the East Riding contains the port of Hull. Among

Yorkshire (continued)

the greatest industrial towns are Sheffield, Leeds, Bradford, Huddersfield, Halifax and Middlesbrough.

Yorktown, surrender of British army, 4-1172

Yosemite National Park, 7-2281-82

Pictures. 7-2284, 2541

You mustn't laugh, game, 8-2745

Young, Brigham, led Mormons to Utah, 6-1913, 1923

Young, Mrs. Ella Flagg, educator, 14-5271-72

Young, James, experiments on petroleum,

3-996; 13-4534

Young, Dr. Thomas. British physicist and Egyptologist; born, 1773; died, 1829.

and study of Rosetta Stone, 10-3548

wave theory of light, 16-5811

Young Chevalier, *see* Stuart, Charles Edward

Young Pretender, *see* Stuart, Charles Edward

Youngstown. Manufacturing city in Ohio, especially noted for iron and steel.

Youth-on-age, plant, 19-6930

Ypres. A town in West Flanders, Belgium, on the Yperle, famous for its manufactures of linen, laces and woollens. Around it were fought some of the most important battles of the World War in 1914, 1915, 1916 and 1917 by British, French and Belgian troops against the Germans. The Canadians held the line in 1915 at Ypres when gas was used for the first time by the Germans. At the end of the war the town was a wreck, as the Germans had consistently bombarded it, destroying the famous cathedral and the Cloth Hall. In army slang Ypres was called "Wipers" by British Tommies.

Yucca, plant

description of flowers, 18-6661

Pictures. 4-1280; 18-6663

Yukon. Great river of Canada and Alaska, flowing from the Rocky Mountains into the Behring Sea. 2,300 miles long, during the summer it is navigable for steamers up to Dawson, 1,400 miles from its mouth. The Klondike is one of its tributaries.

Yukon Territory, Canada

Canadian Mounted Police in gold district,

16-5832-33

discovery of gold, 10-3584

government, 5-1840

history and description, 7-2558, 2560

Yukon created a district in 1897, 4-1490

Picture. 7-2559



ZE3, airship, *see* Los Angeles, airship

Zagreb, capital of Croatia, 17-6346

Zama, Battle of, 4-1196

Zambezi River, Africa, 18-6806

bridge across, highest in world, 1-28

bridge, notes and pictures, 1-38

Victoria Falls, description, 9-3052

Pictures. 7-2540

Victoria Falls, 9-3049

Zampieri, Domenico, *see* Domenichino

Zane, Elizabeth, heroism of, 3-1037

Zangwill, Israel, author, 11-3899

Zanzibar, 9-3054

Zara. Capital and port of Dalmatia, Jugo-Slavia.

Zealand, or Zeeland. Province in Holland. Area,

707 square miles. Capital, Middelburg.

Zebras, animals, 6-2018

Pictures. 6-2017, 2019; 18-6813

Zebu, cattle of India, 4-1262

Picture. (graveure), 4-1267

Zeebrugge. Belgian North Sea port, at the mouth of a ship canal to Bruges. In 1918 the British in a marvelous naval action blocked the harbor and blew up the mole, destroying its value as a base for German submarines. This was one of the most gallant naval actions of the World War.

port facilities, 15-5498

Zend-Avesta, sacred book of Persia, 3-918

Zeno, Greek philosopher

teacher of Pericles, 2-706

Picture. portrait, 2-701

GENERAL INDEX

- Zephyrus**, northwest wind in mythology, **9-3234**
Zeppelin, Ferdinand, Count von, airships of, **1-168**
Zeppelins, airships
 Shenandoah, note and picture, **1-166**
 ZR3, or Los Angeles, note and picture, **1-171**
Zero, Absolute, explanation, **15-5424-25**
 difficulty in getting, **15-5426**
Zeus (Jupiter), god, **9-3226**
 statue, temple at Olympia, **7-2604; 12-4220**
 See also Jupiter, god
Zeuxis, painter, ancient Greece, **2-451**
Zhukovski, Basil, Russian poet, **19-6907**
Ziggurats, Babylonian towers, **14-5208**
Zinc, or **Spelter (Zn)**. A metal, white with a bluish gray tinge, harder than lead and seven times heavier than water. It can be softened by heat of 300 degrees and rolled into sheets or drawn into wire. If heated to a very high temperature in air it burns, leaving zinc oxid, a white powder. The most important zinc ore is sphalerite, or zinc blend. Zinc is melted with copper to form brass. It is used extensively in electric batteries, as linings for tanks, for making etching plates, etc.
 Missouri mines, **17-6038, 6040**
 U. S. produces one-third of the world's supply of zinc, **9-3210**
 uses of, **9-3210**
Zinnia. *Picture*, flower (gravure), **19-7179**
Zion National Park, Utah, description, **7-2291**
 Pictures
 El Gobernador, or the Sphinx, **7-2286**
 Great White Throne, **19-6849**
Zionism, return of Jews to Palestine, **18-6676, 6678; 19-7160, 7162**
Zircon, semi-precious stone
 Pictures (in color), facing **19-7225**
Ziska, John, Bohemian general, **16-5887**
Zobeide, wife of Harun-al-Rashid, **15-5468**
Zodiac
 diagram of signs, **10-3731**
 Question about. What is meant by the zodiac? **10-3730-31**
Zomba, Nyasaland, **9-3052**
Zones, **8-2791-94**
Zoo-guess, game, **5-1776**
Zoology, *see* Animals; *also* names of animals, and classes of animals, as, Vertebrates
Zorille, animal, **3-873**
 Picture, **3-870**
Zorn, Anders Leonhard, Swedish painter, **8-2852**
 Picture, Fisherman of St. Ives (gravure), **8-2864**
Zoroaster, religious leader
 * legendary life, and teachings, **9-3092**
 religion of, **3-912, 918; 9-3092; 15-5463**
 Picture, **9-3085**
Zoroastrianism, ancient religion of Persia, *see* Zoroaster—religion
Zuccherò (or Zuccaro), Federigo, Italian painter
 Picture, Portrait of Queen Elizabeth (gravure), **5-1821**
Zuloaga, Ignacio, Spanish painter, **8-2854**
 Picture, My Cousin Candida, **8-2854**
Zulus, African tribe, and the Boers, **9-3048, 3050**
Zuñi Indians, **1-161**
Zurbaran, Francisco, Spanish painter, **4-1496; 9-3070**
 Pictures
 St. Bruno and Pope Urban II, **4-1494**
 Miracle of St. Hugo, **4-1494**
Zürich, Switzerland, notes and picture, **16-6006-07**
Zürich, Lake of. Swiss lake lying southeast of Zürich. 25 miles long, it covers 32 square miles.
Zuyder Zee, formation of, **15-5555**
Zwingli, Ulrich, Swiss reformer, **16-6004**

INDEX TO POEMS AND NURSERY RHYMES

IN this index, poems are entered under author, under title, and under first line. That is, each poem is entered three times. The arrangement is alphabetic, like a dictionary.

The authors' names are printed in black type, and the titles of all the poems by one man are printed below his name, indented, or set a little to the right.

To find a poem by its title, look under the first word, not counting *The*, *A*, or *An* at the beginning. For instance, a poem named *The Daffodils* would be entered under *Daffodils*.

To find a poem under its first line, look under the first word, and in this case you must include *The*, *A*, or *An* at the beginning, as the whole first line is given, including the initial word. For instance, the first line *The breaking waves dashed high* will be found under the word *The*.

In arranging the entries, all the entries beginning with one word are put together, before any of a longer word that begins with the same letters. For instance, all the entries beginning with *In* come before those beginning with *Into*; all those beginning with *The* come before those beginning with *There*.

Nursery rhymes usually have no author. They are entered under the first line, and under the title if there is one.

The notes at the beginning of the poems tell you something about the author, or about the meaning of the poem, and you will enjoy the poetry more if you read these. These notes may also help you if you are looking for material about an author's life.

We can learn to enjoy poetry more and more, by reading it and by thinking about it. We take pleasure in the sound of the words, in the pictures they call up in our minds, and in the feeling that the poem gives us. A person who reads and loves poetry has all his life a source of pleasure that other people do not have: he sees more of the beauty in the world; he feels more keenly the joy, the sorrow, the picturesqueness, and the nobility of human life. It is worth while to cultivate this love of poetry while you are young, and the collection here gives you many kinds to enjoy.

You will be glad afterward if you learn by heart lines or parts of poems that please you especially. When you are older, it will not be so easy to learn them nor to hold them, but what you learn now will enrich your thinking all your life. For instance, when you are taking a country walk, if you recall a beautiful line about the sky, or some flower or animal, or any other sight, you will find your pleasure heightened. If you learn a line or a verse that makes it easier to be brave, or kindly, or thorough in your work, you will find that often in your life

it will come into your mind and help you. If you have read or learned a poem about some person or historical event, you will be more interested when you meet that person or event in your history lessons or your reading. Another reason for learning bits of poetry is that sometimes we can add to the interest or pleasure of other people in quoting them. In reciting any poetry, be careful to speak it according to its meaning, stopping at the natural places, and not always at the ends of the lines. You are fortunate to have such a collection as this—the best thought of many minds, clothed in beautiful language—and the more you read in it the more you will enjoy it.

If you have a mind that memorizes readily, you might like the plan of learning one poem or quotation a week, and keeping a list of them in a little note-book. It will be interesting to hunt for something new to learn each week. It is important to say them over often, from the list in your note-book, till they are firmly in your mind. After a little while, you will find they almost say themselves, and then you have them surely in your memory treasures. If you have a friend to practice them with, so much the better. Two or three friends, or a little group, could make a Poetry Club; each choose a poem a week, and then recite them to each other. It might be interesting to keep secret what you have chosen, till the meeting.

Above all, be sure to go over the poems till you cannot forget them. Perhaps years from now, when you are a grown person, busy and tired, they will come into your mind like fine music, and you will think, "How glad I am I learned so many poems from *The Book of Knowledge*."

You will find classified lists of poems, beginning on page 7673.

If you want to find poems on any subject, look under the name of the subject in the main index. This Poetry Index gives only authors, titles, and first lines. For instance, if you want all the poems about roses, look under the word *Roses* in the main index, where you will find a heading *Poems about*. But if you want to find a poem with the title *The rose*, you will find that in the Poetry Index. In other words, you look in the Poetry Index for the *exact words* of the title, but you look in the main index for the *subject* that the poem is about.

In the numbers after the entries, the figure in black type gives the volume, and the other figure gives the page.

POETRY INDEX

A

- A baby was sleeping, 16-5710
 A barking sound the shepherd hears, 11-4115
 A Becket, Thomas, *see* Becket, Thomas A
 A boy espied, in morning light, 19-6987
 A chieftain to the Highlands bound, 2-737
 A country life is sweet, 4-1384
 A cuckoo went back in his clock, 8-2907
 A dainty shepherd maiden, 18-6756
 A diller, a dollar, a ten o'clock scholar, 9-3342
 A duck and a drake, 13-4745
 A fair girl was sitting in the greenwood shade, 8-2906
 A farmer's dog leap'd over the stile, 5-1890
 A fire-mist and a planet, 4-1514
 A fragment of a rainbow bright, 9-3107
 A frog he would a-wooing go, 18-6470-71
 A garden is a lovesome thing, God wot, 18-6797
 A goodly host one day was mine, 7-2364
 A horse long used to bit and bridle, 15-5522
 A is an archway to Fairyland gay, 16-5926
 A Life on the Ocean Wave, 4-1383
 A lion with the heat oppress'd, 3-1139
 A little cock sparrow sat on a green tree, 10-3485
 A little fairy comes at night, 3-1138
 A little old man and I fell out, 16-5712
 A little saint best fits a little shrine, 17-6379
 A little stream had lost its way, 12-4474
 A little sun, a little rain, 12-4476
 A Man's a Man for a' That, by Robert Burns, 12-4474
 A mouse found a beautiful piece of plumcake, 13-4743
 A nick and a nock, 13-4602
 A nightingale, that all day long, 2-606
 A Parable, by Sir A. C. Doyle, 11-4032
 A parrot, from the Spanish main, 4-1384
 A peasant stood before a king and said, 18-6755
 A perilous life, and sad as life may be, 4-1384
 A pie sat on a pear-tree, 8-3008
 A piper in the streets today, 9-3110
 A poet's cat, sedate and grave, 5-1780
 A poor soul sat sighing by a sycamore tree, 11-3936
 A rogue, poguey Bogie Man goes dancing through our housey pouse, 15-5527
 A sunshiny shower, 7-2530
 A swarm of bees in May, 4-1386
 "A temple to Friendship," said Laura enchanted, 19-6872
 A thousand miles from land are we, 14-5130
 A wet sheet and a flowing sea, 14-5128
 A wind came up out of the sea, 19-6991
 A Woman's Shortcomings, by Mrs. E. B. Browning, 13-4743
 Abide with Me, by H. F. Lyte, 12-4349
 About Ben Adhem and the Angel, by Leigh Hunt, 3-1138
 About Ben Adhem (may his tribe increase!), 3-1138
 Above the edge of dark appear the lances of the sun, 14-4955
 Across the fields of yesterday, 10-3740
 Adcock, A. St. John
 In The Making, 12-4475
 Addison, Joseph
 Spacious Firmament on High, 13-4600
 Twenty-third Psalm, metrical version, 2-486
 Æneid, by Virgil, quotations from, 6-1986-89
 Ajar in the Desert, by Thomas Pringle, 6-2035
 Ah, what can all thee, wretched wight, 11-4112
 Ahab Mohammed, by J. M. Legare, 18-6755
 Aladdin, by J. R. Lowell, 18-6468
 Alden, Margaret H.
 Mother's World, 5-1645
 Aldrich, Thomas Bailey
 Memory, 12-4348
 Alexander, Mrs. Cecil Frances
 All Things Bright and Beautiful, 12-4273
 Burial of Moses, 14-5237
 Once in Royal David's City, 17-6108
 Alexander Selkirk, by William Cowper, 19-6871
 Alishan, Leon
 Baby and the Brook (translation), 13-4600
 All are architects of Fate, 12-4350
 All day long they come and go, 10-3484
 All honour to him who shall win the prize, 12-4476
 All in the golden afternoon, 9-3198-99
 All peacefully gliding, 15-5421
 All that thou art not makes not up the sum, 11-4114
 All the Children, 9-3276
 All the world's a stage, 11-3933
 All Things Bright and Beautiful, by Mrs. Alexander, 12-4273
 All Things shall Pass Away, by Theodore Tilton, 1-323
 Allan Water, by M. G. Lewis, 2-488
 Allerton, Ellen P.
 Beautiful Things, 12-4270
 Allingham, William
 A Memory, 8-3006
 Fairies, 2-485
 Robin Redbreast, 1-324
 Wishing, 3-1007
 All's Right with the World, by Robert Browning, 2-607
 Alma, field of heroes, hail, 17-6254
 Alma-Tadema, Miss Lawrence
 If No One Ever Marries Me, 12-4275
 King Baby on His Throne, 12-4275
 Little Sister, 12-4274
 March Meadows, 12-4274
 Nesting Hour, 12-4274
 New Pelisse, 12-4274
 Playgrounds, 12-4274
 Twilight Song, 12-4274
 Alone I walked the ocean strand, 13-4742
 Amends to Nature, by Arthur Symonds, 8-3004
 America, *see* My Country, 'Tis of Thee
 America, the Beautiful, by Katharine Lee Bates, 17-6251
 American Flag, by J. R. Drake, 6-2034
 Among the fine old kings that reign, 10-3481
 An ancient story I'll tell you anon, 10-3735
 And if I give thee honor due, 1-327
 "And, pray who are you?" 8-2907
 And what is so rare as a day in June? 4-1515
 Anderson, Alexander
 Cuddle Doon, 11-4116
 Angels Holy, High and Lowly, 10-3739
 Angel's Whisper, by Samuel Lover, 16-5710
 Ann Rutledge, by E. L. Masters, 4-1514
 Annabel Lee, by E. A. Poe, 2-489
 Annie Laurie, by William Douglas, 1-326
 Announced by all the trumpets of the sky, 8-2906
 Answer to a Child's Question, by S. T. Coleridge, 1-324
 Apologia, by Edmund Gosse, 8-3004
 Apple Winds, by W. H. Ogilvie, 18-6651
 Arab's Farewell to his Steed, by Mrs. C. S. Norton, 2-605
 Arctic Indian's Faith, by T. D'A. McGee, 10-3481
 Argument of his Book, by Robert Herrick, 1-328
 Ariel's Song, by Wm. Shakespeare, quotation, 8-2689

POETRY INDEX

- Armada: a Fragment, by T. B. Macaulay, 14-5127
 Armageddon, by Sir Edwin Arnold, 12-4348
 Armies in the Fire, by R. L. Stevenson, 1-101
 Arming of Pigwiggan, by Michael Drayton, 3-847
 Arms and the man I sing, 6-1986
Arnold, Sir Edwin
 Armageddon, 12-4348
Arnold, Matthew
 Forsaken Merman, 8-3001
 Quiet Work, 18-6650
 Shakespeare, 7-2365
 Arrow and the Song, by H. W. Longfellow, 13-4744
 Art thou pale for weariness, 2-489
 Art thou poor, yet hast thou golden slumbers? 9-3339
 Arthur O'Bower had broken his band, 7-2368
 As a fond mother, when the day is o'er, 14-5238
 As Down in the Sunless Retreats, by Thomas Moore, 6-2035
 As he trudged along to school, 12-4480
 As I walked by myself, 3-1010
 As I was going by Charing Cross, 10-3743
 As I was going o'er Westminster Bridge, 7-2368
 As I was going to St. Ives, 16-5929
 As I was going to sell my eggs, 13-4602
 As I was going up Pippin Hill, 16-5712
 As I went through a garden gap, 7-2368
 As I went to Bonner, 17-6384
 As in the sunshine of the morn, 7-2638
 As Life's unending column pours, 6-2245
 As little Jenny Wren, 7-2639
 As soft as silk, as white as milk, 7-2368
 As the days lengthen, 7-2530
 As through the land at eve we went, 17-6378
 At Atri, in Abruzzo, a small town, 19-6869-70
 At Flores in the Azores Sir Richard Grenville lay, 13-4739
 At Last, by J. G. Whittier, 7-2637
 At midnight, in his guarded tent, 8-2765
 At Sea, by Allan Cunningham, 14-5128
 At the king's gate the subtle noon, 9-3275
 At Twilight, by W. C. Roberts, 11-4114
 Atalanta in Calydon, Chorus from, by A. C. Swinburne, 6-2243
 Attend, all ye who list to hear our noble England's praise, 14-5127
 Auld Lang Syne, by Robert Burns, 17-6380
Austin, Alfred
 Queen and the Flowers, 6-2033
 Austria, 17-6251
 Autumn, by P. B. Shelley, 4-1515
 Avenge, O Lord, thy slaughtered saints, whose bones, 1-328
 Ay, tear her tattered ensign down! 4-1380
- B**
- Baa. Baa. black sheep, 5-1782
 Baby, by George Macdonald, 2-486
 Baby and I were baked in a pie, 3-1143
 Baby and the Brook, by Leon Alishan (translation), 13-4600
 Baby, baby, lay your head, 1-324
 Baby moon, 'tis time for bed, 12-4274
 Babyland, by George Cooper, 17-6379
 Babyland, by Mrs. Ella Wheeler Wilcox, 16-5923
 Babylon, by John Buchan, 8-3005
 Baby's got a new pelisse, 12-4271
 Baby's got no legs at all, 12-4274
Bailey, Philip James
 Festus quotation from: End of Life, 3-1007
 Bailiff's Daughter, 11-4030
Baillie, Joanna
 Good-night, Good-night, 3-1009
 Ballad of Agincourt, by Michael Drayton, 5-1885
Balmont, Konstantin
 Hymn to Free Russia, 17-6253
Banks, George Linnaeus
 What I Live For, 9-3274
 Bannockburn, by Robert Burns, 2-738
Barbauld, Mrs. Anna Letitia
 Life, 18-6651
 Barber, barber, shave a pig, 8-2907
 Barefoot Boy, by J. G. Whittier, 4-1517
 Bargain, by Sir Philip Sidney, 19-6991
Baring-Gould, Sabine
 Now the Day is Over, 11-4034
Baron's Last Banquet, by A. G. Greene, 13-4742
- Barr, Matthias**
 Only a Baby Small, 5-1887
 Bat, bat, come under my hat, 4-1386
Bates, David (probable author)
 Speak Gently, 18-6755
Bates, Katharine Lee
 America, the Beautiful, 17-6251
 Battle-hymn of the Republic, by Mrs. Julia Ward Howe, 17-6251
 Battle of Blenheim, by Robert Southey, 2-483
 Battle of the Baltic, by Thomas Campbell, 3-1140
Baxter, Richard
 Lord, it Belongs Not to my Care, 16-5867
 Be Patient With the Children, 14-5240
 Beati Illi, by J. A. Symonds, 14-5131
 Beautiful faces are those that wear, 12-4270
 Beautiful Things, by Ellen P. Allerton, 12-4270
Becker, Charlotte
 Envoy, 11-4030
Becket, Thomas à (supposed author)
 Columbia, the gem of the ocean, 17-6250
Beddoes, Thomas Lovell
 How Many Times? 10-3644
 Bedouin Song, by Bayard Taylor, 9-3270
Beeching, H. C.
 Prayers, 10-3739
 Bees, The, by A. P. Graves, 4-1519
 Before Action, by William N. Hodgson, 10-3738
 Before the beginning of years, 6-2243
 Before the winter's haunted nights are o'er, 10-3737
Begbie, Harold
 Sun was Falling off to Sleep, 8-3007
Begbie, Janet
 A Dedication, 11-4032
 Beggar Maid, by Lord Tennyson, 2-736
 Behind him lay the gray Azores, 2-485
 Behold her, single in the field, 14-4954
 Behold Shock-headed Peter, 12-4477
Belestier, Elliot
 God's Fool, 14-5128
 Believe me, if All those Endearing Young Charms, by Thomas Moore, 17-6378
 Bell of Atri, by H. W. Longfellow, 19-6869-70
 Bells, The, by E. A. Poe, 16-6023
 Bells of Shandon, by F. S. Mahony, 14-5238
Bennett, William Cox
 Lullaby! O Lullaby! 13-4600
Benson, Arthur Christopher
 Land of Hope and Glory, 6-2150
 My Old Friend, 12-4271
 My Will, 10-3740
Beranger, Pierre Jean de
 Gaddy, extract, 18-6717
 Grandmother's Tale, 16-5921
 Best School of All, by Henry Newbolt, 16-5711
 Better Land, by Mrs. Felicia Hemans, 18-6648
 Better Things, by George Macdonald, 4-1383
 Better to smell the violet cool, than sip the glowing wine, 4-1383
 Better trust all, and be deceived, 16-5924
 Betty Pringle had a little pig, 6-2154
 Between Nose and Eyes a strange contest arose 11-4116
 Between the dark and the daylight, 14-4955
 Bid me to live, and I will live, 19-6991
 Big and Little Things, by A. H. Miles, 7-2638
 Billy, Billy, come and play, 8-2907
 Billy Boy, by M. M. Dodge, 3-1144
Binyon, Laurence
 For the Fallen, 12-4272
 O World, be Nobler, 12-4472
 Birch and green holly, boys, 4-1386
 Bird of the wilderness, 3-1142
 Birds, by R. H. Stoddard, 8-2764
 Birds are singing round my window, 8-2764
 Birds in Summer, by Mary Howitt, 13-4744
 Birth of Christ, by S. C. Hamerton, 17-6108
 Birthday, A. by Christina Rossetti, 4-1383
 Bivouac of the Dead, by Theodore O'Hara, 8-2767
Bjerregaard, H. A.
 Sons of Dear Norway (Sonner af Norge), 17-6253
 Black we are, but much admired, 7-2368
Blackie, Stuart
 Angels Holy, High and Lowly, 10-3739
 Blake, by Edmund Gosse, 8-2764
Blake, William
 Lamb, 2-606
 Night, 17-6376
 Nurse's Song, 3-847
 Piping Down the Valleys Wild, 8-2764

POETRY INDEX

Blake, William (continued)

Sleep, Beauty Bright, 3-848
Tiger, 3-1139
Blame, by J. A. Symonds, 10-3738
Blame not the times in which we live, 10-3738
Bless you, bless you, bonnie bee, 3-1143
Blessed are They that Mourn, by W. C. Bryant, 19-6873

Blessed Damozel, by D. G. Rossetti, 8-2904
Blessings on thee, little man, 4-1517
Blest is the man whose heart and hands are pure! 14-5131

Blewett, Jean

Song of the Golden Sea, 15-5421
Blind Archer, by Sir A. C. Doyle, 7-2526
Blind Boy, by Colley Cibber, 3-1007
Blow, blow, thou winter wind, 3-838
Blow, wind, blow, and go, mill, go, 18-6800
Blue and the Gray, by F. M. Finch, 10-3643
Boadicea, by William Cowper, 1-322-23
Bobby Shaft is gone to sea, 15-5652
Bogie Man, by A. P. Graves, 15-5527

Boker, George Henry

Dirge for a Soldier, 3-1006

Bonar, Horatius

Thy Way, Not Mine, O Lord, 13-4599
Bonnie Jean, by Robert Burns, 6-2246
Bonny Kilmeny gaed up the glen, 16-5863-66
Borrowing, by R. W. Emerson, 16-6024

Bostwick, Helen B.

King's Picture, 18-6648
Bounce Buckram, velvet's dear, 17-6110

Bourdillon, F. W.

Light, 17-6378
Bow-wow, says the dog, 15-5652
Bow, wow, wow, whose dog art thou? 13-4601
Bowed by the weight of centuries he leans, 8-3003

Bowles, William Lisle

Caged Bird, 12-4270
Boy and the Angel, by Robert Browning, 13-4741

Boyle, Sarah

Voice of the Grass, 6-2153
Boy's Song, by James Hogg, 2-607
Boy's Thanksgiving, by R. M. Dennis, 6-2152
Bravest Battle that Ever was Fought, by Joaquin Miller, 12-4474

Break! break! break! by Lord Tennyson, 6-2151

Brewer, Ebenezer Cobham

Little Things, 3-1007
Brian O'Lin had no breeches to wear, 3-1143

Bridge, by H. W. Longfellow, 4-1515

Bring Back your Sheep, 18-6756

Brook, by Lord Tennyson, 1-101

Brooke, Rupert

The Soldier, 12-4273

Brooke, Stopford

Earth and Man, 12-4476

Brown, Thomas Edward

My Garden, 18-6797

Brown, William

Epitaph on the Countess Dowager of Pembroke, 13-4599

Browning, Mrs. Elizabeth Barrett

Aurora Leigh: quotations, 10-3690
Child's Thought of God, 2-486
How do I love thee? 15-5647
Man's Requirements, 5-1646
Musical Instrument, 5-1779
My Kate, 14-5241
Poet and the Bird, 11-4033
Sleep, 8-2765
Sonnets from the Portuguese, 10-3690
Sweetest Lives, 4-1380
Valediction, 4-1380
Weakest Thing, 7-2637
Woman's Shortcomings, 13-4743

Browning, Robert

All's Right with the World, 2-607
Boy and the Angel, 13-4741
Home Thoughts, from Abroad, 10-3736
How They Brought the Good News, 19-6867-68
Incident of the French Camp, 12-4350
Last Ride Together: quotation, 9-3109
Life in a Love, 1-325
Patriot, 18-6799
Pied Piper of Hamelin, 1-224
Prosperity, 3-1006

Brownlow, E. B.

Work, 10-3480

Bryant, William Cullen

Blessed are They that Mourn, 19-6873
Death of the Flowers, 18-6799

Bryant, William Cullen (continued)

Forest Hymn, 10-3741
Indian at the Burial-place of his Fathers, 18-6650
Planting the Apple-tree, 18-6648-49
Robert of Lincoln, 15-5523
Song of Marion's Men, 11-4032
To a Waterfowl, 17-6379
To the Fringed Gentian, 19-6873
Truth, crushed to earth shall rise again, 14-5131

Buchan, John

Babylon, 8-3005

Buchanan, Robert

Coming of Spring, 11-4032
Judas Iscariot (last part of poem), 14-5239
Buckle, by Walter de la Mare, 7-2365
Bugle, by Lord Tennyson, 8-2903
Builders, by H. W. Longfellow, 12-4350

Bull, John

God Save the King, 18-6651

Bunyan, John

He that is down, needs fear no fall, 15-5553
The Pilgrim, 9-3338
Burial of Moses, by C. F. Alexander, 14-5237
Burial of Sir John Moore, by Charles Wolfe, 2-607
Burial of the Linnet, by Mrs. J. H. G. Ewing, 14-4956

Burns, James Drummond

Evening Hymn, 13-4741

Burns, Robert

A Man's a Man for a' That, 12-4474
Auld Lang Syne, 17-6380
Bannockburn, 2-738
Bonnie Jean, 6-2246
Cotter's Saturday Night, 13-4597
John Anderson, 18-6798
My Heart's in the Highlands, 4-1382
quotations from, 6-2136, 2138
Red, Red Rose, 9-3271
Selkirk Grace, 12-4475
To a Mountain Daisy, 14-5123
To a Mouse, 3-1008

Burroughs, John

Waiting, 6-2244

Buttercups and Daisies, by Mary Howitt, 1-323
Butterfly and the Snail, by John Gay, 7-2638
Butterfly's Ball, by William Roscoe, 3-1003
Butterfly's Funeral, 10-3644
By all the glories of the day, 10-3728
By Nebo's lonely mountain, 14-5237
By the flow of the inland river, 10-3643
By the moon's silver ray, 14-5132
By the rude bridge that arched the flood, 11-4032
By the shores of Gitchee Gumee, 19-6985-86
Bye, Baby Bunting, 2-739

Byrom, John

Christians, Awake! 17-6106

Byron, George Gordon, lord

Destruction of Sennacherib, 19-6990
Eve of Waterloo, 8-2766
quotations from, 7-2490-91
She Walks in Beauty, 8-2903
To Thomas Moore, 19-6989
Venice, 14-5131
Vision of Belshazzar, 7-2529

C

Caged Bird, by W. L. Bowles, 12-4270

Campbell, Thomas

Battle of the Baltic, 3-1140
Hohenlinden, 3-1009
Irish Harper, 10-3741
Lord Ullin's Daughter, 2-737
Parrot, 4-1384

Ye Mariners of England, 2-609

Canada, by J. F. McDermott, 9-3109

Canadian Boat Song, anonymous, 9-3271

Canadian Boat-Song, by Thomas Moore, 15-5419

Canadian Song-Sparrow, by Sir James Edgar, 10-3482

Cane-bottomed Chair, by W. M. Thackeray, 8-2763

Carew, Lady Elizabeth

True Goodness, 5-1887

Carew, Thomas

Disdain Returned, 9-3110

Carey, Henry

Sally in our Alley, 6-2151

POETRY INDEX

- Carman, Bliss**
Gift, 19-6991
We are the roadside flowers, 17-6282
- Carroll, Lewis**
All in the golden afternoon, 9-2198-99
Walrus and the Carpenter, 6-2037
- Carruth, William Herbert**
Each in His Own Tongue, 4-1514
- Cary, Alice**
Gray Swan, 6-2149
- Cary, Phoebe**
Leak in the Dyke, 5-1777
- Casabianca, by Mrs. Felicia Hemans, 4-1384**
- Castle-Builder, by Jean de la Fontaine, 12-4270**
- Castle by the Sea, by Ludwig Uhland, 19-6988**
- Cat's Tea-party, rhyme, 5-1782**
- Chadwick, John White**
Eternal Ruler of the Ceaseless Round, 6-2150
- Chant National, by Basile Routhier, 17-6256**
- Character of a Happy Life, by Sir Henry Wotton, 13-4599**
- Charcoal-Burner, by Edmund Gosse, 10-3739**
- Charge of the Light Brigade, by Lord Tennyson, 5-1778**
- Charley, Charley, stole the barley, 13-4601**
- Chaucer, Geoffrey**
Canterbury Tales: quotations from, 13-4768-73
- Cher Ami, D. S. C., by H. W. Farrington, 6-2151**
- Cher Ami, how do you do! 6-2151**
- Cherry Ripe, by Robert Herrick, 8-3002**
- Child, Mrs. Lydia Maria**
Thanksgiving Day, 19-6873
- Child and the Snake, by Charles and Mary Lamb, 7-2528**
- Children's Hour, by H. W. Longfellow, 14-4955**
- Child's Evening Prayer, by S. T. Coleridge, 2-485**
- Child's Evening Prayer, by A. P. Graves, 2-611**
- Child's Thought of God, by E. B. Browning, 2-486**
- Child's Wish in June, 4-1383**
- Christians, Awake! by John Byron, 17-6106**
- Christmas Carol, by J. G. Holland, 14-4955**
- Christmas Hymn, by Alfred Domett, 18-6466**
- Christmas Morning, by Edwin Waugh, 17-6107**
- Cibber, Colley**
Blind Boy, 3-1007
- Clap, clap handies, 13-4602**
- Clare, John**
I am! Yet what I am who cares or knows? 12-4228
- Clear and cool, clear and cool, 5-1646**
- Clearlest voice in Britain's chorus, Tusitala, 10-2737**
- Close his eyes; his work is done, 3-1006**
- Cloud, by P. B. Shelley, 18-6647**
- Clough, Arthur Hugh**
Say Not, the Struggle Naught Availeth, 17-6380
- Cock a doodle doo! 8-2772**
- Cock Robin got up early, 8-3008**
- Cooks crew in the morn, 2-738**
- Cold and raw the north wind doth blow, 10-3743**
- Coleridge, Samuel Taylor**
Answer to a Child's Question, 1-324
Child's Evening Prayer, 2-485
Good Great Man, 16-5867
- Collins, William**
quotations from, 6-2029
- Colors of the Flag, by F. G. Scott, 10-3482**
- Columbia, the Gem of the Ocean, attributed to Thomas à Becket, 17-6250**
- Columbus, by Joaquin Miller, 2-485**
- Come, all ye weary wanderers, 17-6107**
- Come, dear children, let us away, 8-3001**
- Come, fairest fisher maiden, here, 19-6987**
- Come follow, follow me, 7-2636**
- Come hither, ladies, and hearken, for a tale there is to tell, 16-6024**
- Come Into the Garden, Maud, by Lord Tennyson, 4-1270**
- Come, let us plant the apple-tree, 18-6648-49**
- Come, let's to bed, 2-740**
- "Come, little leaves," said the wind one day, 19-6990**
- Come, live with me and be my love, 9-3274**
- Come, my little one, with me! 9-3108**
- Come o'er the stream, Charlie, 15-5641**
- Come, take up your hats, and away let us haste, 3-1008**
- Come unto these yellow sands, 3-986**
- Coming of Spring, by Robert Buchanan, 11-4032**
- Common Natures, by Aaron Hill, 11-4116**
- Common Things, by Mrs. Hawshawe, 13-4744**
- Composed Upon Westminster Bridge, by William Wordsworth, 12-4350**
- Conclusion, by Sir Walter Raleigh, 14-4970**
- Concord Hymn, by R. W. Emerson, 11-4032**
- Cook, Eliza**
Fern and the Moss, 12-4273
King Bruce and the Spider, 15-5521
Mouse and the Cake, 13-4743
Old Arm-Chair, 4-1516
- Cooper, George**
Babyland, 17-6379
Leaves and the Wind, 19-6990
- Corbet, Richard**
A Father's Blessing, 19-6873
- Cornwall, Barry (Bryan Waller Procter)**
Fisherman, 4-1384
Horned Owl, 15-5523
Sea, 19-6871
Stars, 2-609
Stormy Petrel, 14-5130
- Coronach, 9-3111**
- Coronation, by Mrs. H. H. Jackson, 9-3275**
- Cory, William**
Heracitus, 8-3004
- Cotter's Saturday Night, by Robert Burns, 13-4597**
- Could ye come back to me, Douglas, Douglas, 6-2034**
- Could you count the bright stars peeping, 7-2366**
- Counsel to Girls, by Robert Herrick, 5-1779**
- Country Faith, by Norman Gale, 6-2036**
- Courtin', by James Russell Lowell, 16-5922**
- Cowards die many times before their deaths, 11-3933**
- Cowper, William**
Alexander Selkirk, 19-6871
Boadicea, 1-322-23
Dispute between Nose and Eyes, 11-4116
Dog and the Water-Lily, 7-2528
Epitaph on a Hare, 7-2529
God Moves in a Mysterious Way, 3-1141
John Gilpin, 5-1639-43
Loss of the Royal George, 1-324
Nightingale and Glow-worm, 2-606
Retired Cat, 5-1780
- Cradle Song, by Lord Tennyson, 3-848**
- Cradle Song, by Isaac Watts, 14-5241**
- Crawford, Louisa Macartney**
Kathleen Mavourneen, 1-326
- "Croak," said the toad, "I'm hungry, I think," 13-4601**
- Crocus, by Mrs. H. E. King, 12-4472**
- Cromwell, our chief of men, who through a cloud, 12-4349**
- Cross patch, 4-1386**
- Crossing the Bar, by Lord Tennyson, 4-1382**
- Cry of the Dreamer, by J. B. O'Reilly, 12-4473**
- Cuddle Doon, by Alexander Anderson, 11-4116**
- Culprit Fay, by J. R. Drake, 4-1271**
- Cunningham, Allan**
At Sea, 14-5128
- Curfew Bell, by R. H. Thorpe, 7-2363**
- Curly locks! Curly locks! will thou be mine? 4-1386**

D

- "Dead, has a boat," 18-6756**
- Daffodils, by William Wordsworth, 1-102**
- Dainty, diddlety, my mammy's maid, 15-5652**
- Daisy at Christmas, by James Montgomery, 18-6168**
- Dame, get up and bake your pies, 17-6112**
- Dance a Baby, 7-2530**
- Dance, little baby, dance up high, 14-4957**
- Dance of the Flowers, 7-2366**
- Dance to your daddie, 3-1010**
- Dane, Barry, see Logan, John E.**
- Dante Alighieri**
Inferno: quotations from, 17-6151
- Darius Green, by J. T. Trowbridge, 18-6795**
- Dark house, by which once more I stand, 12-4343**
- Darling Mother, shall I say, 16-5869**
- Davidson, John**
Piper, Play! 6-2242
- Davies, W. H.**
Leisure, 9-3111
Dawn of pearl and of mist, 15-5422
- Day Is Coming, by William Morris, 16-6024**
- Day Is Done, by H. W. Longfellow, 18-6468**
- Day of Days, by William Morris, 12-4475**
- Day Thou Gavest, by John Ellerton, 6-2243**

POETRY INDEX

Daybreak, by H. W. Longfellow, 19-6991
 Dear Land of Hope, thy hope is crowned,
 6-2150
 Death of Napoleon, by Isaac McLellan, 19-6868
 Death of the Flowers, by W. C. Bryant, 18-6799
 Death of the Old Year, by Lord Tennyson,
 17-6109
 Death stands above me, whispering low, 19-6991
 Death Undreaded, by W. S. Landor, 19-6991
 De Bell of St. Michel, by W. H. Drummond,
 10-3483
 December, by J. M. Gibbon, 15-5422
 December's Snow, by Sir A. C. Doyle, 8-3004
 Dedication, by Janet Begbie, 11-4032
 Deed and a Word, by Charles Mackay, 12-4474
 Deep on the convent-roof the snows, 19-6874
Dekker, Thomas
 O Sweet Content, 9-3339
De la Mare, Walter
 The Buckle, 7-2365
De Lisle, Rouget, see Rouget de Lisle
Dennis, Richard Molesworth
 Boy's Thanksgiving, 6-2152
 Deserted House, by Lord Tennyson, 10-3740
 Deserted Village, by Oliver Goldsmith, 15-5645-47
 Destruction of Sennacherib, by Lord Byron,
 19-6990
 Dey say dat in de winter in de norf it mostly
 snows, 19-6873
 Diamond Dust, by John Oxenham, 9-3271
Dibdin, Charles
 Tom Bowling, 5-1781
Dickens, Charles
 Ivy Green, 10-3741
 Dickery, dickery dare, 13-4601
Dickinson, Mary Lowe
 If We Had but a Day, 8-2903
 Did you hear of the curate who mounted his
 mare? 16-5708
 Did you ne'er think what wondrous beings
 these? 14-5131
 Diddle diddle dumpling, my son John, 16-5868
 Diddle-diddle-dumpty, the cat ran up the
 plum-tree, 14-4957
 Didn't know Flynn, 6-2244
 Die Wacht am Rhein, by Schneckenburger,
 17-6254
 Ding dong bell; pussy's in the well, 11-4120
 Dip down upon the northern shore, 12-4345
 Dirge for a Soldier, by G. H. Boker, 3-1006
 Discontented Apples, by F. E. Weatherly, 5-1888
 Discoverer, by Edmund Clarence Stedman,
 16-5866
 Disdain Returned, by Thomas Carew, 9-3110
 Dispute between Nose and Eyes, by William
 Cowper, 11-4116
 Dixie, 17-6250
 Do you know what the birds say? 1-324
 Do you wish the world were better? 7-2528
 Dobbin has a little friend, 5-1887
 Dobbin's Friend, by Mary Mapes Dodge,
 5-1887
Dobson, Austin
 In After Days, 7-2365
 Doctor Foster went to Glo'ster, 10-3743
Dodge, Mrs. Mary Mapes
 Billy Boy, 3-1144
 Dobbin's Friend, 5-1887
 Good Little Girls, 3-1144
 Little White Feathers, 3-1144
 One and One, 3-1144
 Terrible Ball, 3-848
 Three Old Ladies, 3-1144
 Willie's Lodger, 5-1888
 Does the road wind up-hill all the way?
 12-4472
 Dog and the Water-Lily, by William Cowper,
 7-2528
Domett, Alfred
 Christmas Hymn, 18-6466
 Dost thou look back on what hath been, 12-4345
Doudney, Sarah
 Lesson of the Water Mill, 12-4473
 Things That Never Die, 5-1887
Douglas, William
 Annie Laurie, 1-326
 Douglas, Douglas, Tender and True, by D. M.
 Mulock, 6-2034
 Douglas Tragedy, ballad, 11-4112
 Dove, by John Keats, 3-1142
 Down from yon distant mountain height,
 13-4600
 Down in a green and shady bed, 2-489

Doyle, Sir Arthur Conan
 Blind Archer, 7-2526
 December's Snow, 8-3004
 Parable, 11-4032
 Song of the Bow, 9-3107
Drake, Joseph Woodman
 American Flag, 6-2034
 Culpit Fay, 4-1271
 Drake he's in his hammock an' a thousand mile
 away, 16-5924
 Drake's Drum, by Sir Henry Newbolt, 16-5924
Drayton, Michael
 Arming of Pigwigen, 3-847
 Ballad of Agincourt, 5-1885
 Dribble, dribble, trickle, trickle, 3-1143
 Drink to me only with thine eyes, 2-489
Drummond, William Henry
 De Bell of St. Michel, 10-3483
 Ole Tam on Bord-a Plouffe, 10-3479
Dryden, John
 Song For St. Cecilia's Day, 4-1270
Duff, J. W., translator
 Virgil's Aeneid: quotations from, 6-1986-89
Duncan, Mary Lundie
 Jesus, Tender Shepherd, 13-4742
Dyer, Sir Edward
 My Mind to me a Kingdom is, 9-3339

E

Each eve Earth falleth down the dark, 12-4475
 Each in His Own Tongue, by W. H. Carruth,
 4-1514
 Earth and Man, by Stopford Brooke, 12-4476
 Earth has not anything to show more fair,
 12-4350
 Earthly Paradise: introduction, by William
 Morris, 9-3108
Edgar, Sir James
 Canadian Song-Sparrow, 10-3482
Elder, Mrs. Lilla T.
 Mother's Kisses, 3-1139
 My Menagerie, 4-1516
 O Mammy's Pickaninny, 19-6873
 There's Room at the Top, 16-5923
 Elegy on the Death of a Mad Dog, by Oliver
 Goldsmith, 3-1141
 Elegy Written in a Country Churchyard, by
 Thomas Gray, 9-3337
Eliot, Henrietta Robins
 Why it Was Cold in May, 11-4033
 Elxir, by George Herbert, 12-4349
 Elizabeth, Elspeth, Betsy, and Bess, 9-3342
Ellerton, John
 Day Thou Gavest, 6-2243
Emerson, Ralph Waldo
 Borrowing, 16-6024
 Concord Hymn, 11-4032
 Good-bye, 6-2245
 Mountain and the Squirrel, 3-846
 Nation's Strength, 14-5129
 Snow-Storm, 8-2906
 Test, 13-4743
 Enchanted Shirt, by John Hay, 1-102
 End of Life: quotation from Festus, by P. J.
 Bailey, 3-1007
 England, My England, by W. E. Henley, 7-2365
 England's sun was slowly setting o'er the hill-
 tops far away, 7-2363
 Envoy, by Charlotte Becker, 11-4030
 Epitaph on a Hare, by William Cowper, 7-2529
 Epitaph on the Countess Dowager of Pembroke,
 by William Browne, 13-4599
 Ere on my bed my limbs I lay, 2-485
 Erl King, by J. W. von Goethe, 19-6988
 Escape me? Never—Beloved! 1-325
 Eternal Father, strong to save, 19-6871
 Eternal Ruler of the Ceaseless Round, by J. W.
 Chadwick, 6-2150
 Ethereal minstrel! pilgrim of the sky, 7-2529
 Eve of Waterloo, by Lord Byron, 8-2766
 Even such is Time, that takes in trust,
 14-4970
 Evening Hymn, by J. D. Burns, 13-4741
 Evening Hymn, by John Keble, 4-1382
 Ever just over the top of the next brown rise,
 11-4114
 Ever let the fancy roam! 6-2241
 Every evening after tea, 11-4036
 Every lady in this land, 18-6800
 Every one that flatters thee, 11-3932
Ewing, Mrs. J. H. G.
 Burial of the Linnet, 14-4956

POETRY INDEX

Excelsior, by H. W. Longfellow, 2-609
Eyes of blue and hair of gold, 5-1645

F

Faintly as tolls the evening chime, 15-5419
Fair Daffodils, by Robert Herrick, 7-2527
Fair daffodils, we weep to see, 7-2527
Fair ship, that from the Italian shore, 12-4343
Fair stood the wind for France, 5-1885
Fair these broad meads—these hoary woods are grand, 9-3271
Fairies, by William Allingham, 2-485
Fairy Life, by William Shakespeare, 6-2152
Fairy Lullaby, by William Shakespeare, 6-2153
Fairy Song, by John Keats, 2-606
Fairy Tempter, by Samuel Lover, 8-2906
Faith, by Fanny Kemble, 16-5924
Faith, by Ray Palmer, 13-4740
Falling, falling leaves, 15-5422
Farewell, by Charles Kingsley, 1-102
Farewell, by John Addington Symonds, 16-5924
Farewell, a long farewell, to all my greatness, 11-3928
Farmer's Boy, 16-6025
Farragut, by W. T. Meredith, 10-3643
Farrington, Harry Webb
Cher Ami, D. S. C., 6-2151
Father and I went down to camp, 17-6250
Father William, by Robert Southey, 2-484
Fatherland, by J. R. Lowell, 3-846
Father's Blessing, by Richard Corbet, 19-6873
Fear death?—to feel the fog in my throat, 3-1006
Fear no more the heat o' the sun, 3-986
Fern and the Moss, by Eliza Cook, 12-4273
Festus, quotation from: End of Life, by P. J. Bailey, 3-1007
Fiddle-de-dee, Fiddle-de-dee, the fly has married the humble-bee, 4-1274
"Fiddle-Dee-Dee!" by Eugene Field, 9-3272
Fidelity, by William Wordsworth, 11-4115
Field, Eugene
"Fiddle-Dee-Dee!" 9-3272
Fly-Away Horse, 11-4111
Good-Children Street, 9-3340
Humming Top, 6-2150
Inscription on a Silver Plate, 12-4473
Long Ago, 9-3108
Pittypat and Tippytoe, 10-3484
Poet and King, 12-4476
Rock-a-bye Lady, 18-6469
Shuffle-Shoon and Amber-Locks, 19-6993
Shut-Eye Train, 9-3108
Teeny-Weeny, 11-4036
Wynken, Blynken, and Nod, 1-98
Field, James T.
Owl-Critic, 7-2640
Finch, Francis Miles
Blue and the Gray, 10-3643
Nathan Hale, 4-1381
Finis, by W. S. Landor, 12-4474
Fir-Tree (German folksong), 7-2367
Fisherman, by Barry Cornwall, 4-1384
Five little pussy-cats, invited out to tea, 16-6028
Five little sisters walking in a row, 19-6995
Flag, 15-5650
Flag Day, by Minna Irving, 15-5650
Fleet Street, by Shane Leslie, 13-4600
Flight of the Arrow, by R. H. Stoddard, 16-5866
Flight of Youth, by R. H. Stoddard, 18-6650
Flour of England, fruit of Spain, 7-2368
Flowers, by W. B. Rands, 6-2244
Fly-Away Horse, by Eugene Field, 11-4111
Flynn of Virginia, by Bret Harte, 6-2244
Follen, Eliza Lee
Oh, Look at the Moon! 7-2364
Fool's Prayer, by E. R. Sill, 2-488
Foot Soldiers, by J. B. Tabb, 11-4111
For all your days prepare, 8-3006
For every evil under the sun, 4-1386
For I dipt into the future, far as human eye could see, 9-3276
For I have learned to look on nature, 7-2357
For Justice, by B. F. Trotter, 15-5422
For the Fallen, by Laurence Binyon, 12-4272
For Those who Fall, by Joaquin Miller, 12-4476
Forest Hymn, by W. C. Bryant, 10-3741
Forsaken Merman, by Matthew Arnold, 8-3001
Forth sprang the impassioned Queen her Lord to clasp, 8-2820

Foster, Stephen Collins

Massa's in de Cold, Cold Ground, 8-2764
My Old Kentucky Home, Good-Night, 8-3002
Oh! Boys, Carry me 'Long, 4-1516
Old Folks at Home, 4-1380
Found in the garden dead in his beauty, 14-4956
Fountain, by J. R. Lowell, 2-607
Four and twenty tailors went to kill a snail, 2-740
Four ducks on a pond, 8-3006
Four Things, by Henry Van Dyke, 8-2765
Four things a man must learn to do, 8-2765
Fourteen small brodered berries on the hem, 12-4475
Fresh with all airs of woodland brooks, 12-4348
Friends, Romans, countrymen, lend me your ears, 11-3929
Frog he would a-wooing go, 18-6470-71
Frolic of Johnny the Stout, 5-1884
From breakfast on through all the day, 3-1009
From harmony, from heavenly harmony, 4-1270
From out the tomb the dead heroes are speaking, 17-6252
From the Desert I come to thee, 9-3270
From the leafy maple ridges, 10-3482
From thy fearful sword I know thee, 17-6255
From you I have been absent in the Spring, 2-724
Frost Looked Forth, 6-2148
Fulke-Greville, Sir, see Greville
Full knee-deep lies the winter snow, 17-6109
Full Sea Rolls, by W. E. Henley, 8-2764

G

Gadfly, by Béranger, extract, 18-6717
Gaelic Lullaby, 10-3480
Gale, Norman
Country Faith, 6-2036
Garibaldi's Hymn, by Mercantini, 17-6252
Gates, Ellen M. H.
My Mother's Hands, 5-1646
Gather ye rosebuds while ye may, 5-1779
Gay, John
Butterfly and the Snail, 7-2638
Gentle Jesus, Meek and Mild, by Charles Wesley, 9-3270
Gibbon, John Murray
December, 15-5422
March, 15-5422
May, 15-5422
October, 15-5422
Gift, by Bliss Carman, 19-6991
Gilder, Richard Watson
Great Nature is an Army Gay, 14-5130
Ginevra, by Samuel Rogers, 6-2032
Girls and boys come out to play (with music), 3-1010; 7-2641
Gisborne, Thomas
The Worm, 3-847
Give a Man a Horse He Can Ride, by James Thomson, 2-489
Give me your ear, good children all, 3-843
Give thy thoughts no tongue, 11-3932
"Give us a song!" the soldiers cried, 6-2034
Give us men, 18-6797
Go, lovely rose, 19-6874
Go 'way, go 'way, don't ring no more, ole bell of Saint Michel, 10-3483
Goblin Market, by C. G. Rossetti, 9-3103
God be with thee, my beloved, 4-1380
God makes sech nights all white an' still, 16-5922
God Moves in a Mysterious Way, by William Cowper, 3-1141
God of Justice, our salvation, 17-6255
God of our fathers, known of old, 19-6872
God Only Knows (German folksong), 7-2366
God preserve our noble Emp'r'r, 17-6251-52
God Rest You Merry, Gentlemen, 17-6105
God save our gracious king, 18-6651
God Save the King, by John Bull, 18-6651
God Sends Love to You (from The House of Rimmon), by Henry Van Dyke, 14-4955
God shield ye, heralds of the spring, 7-2364
God who created me, 10-3739
God's Fool, by Elliot Beliestier, 14-5128
God's gifts so many a pleasure bring, 6-2152
Goethe, Johann Wolfgang von
Erl King, 19-6988
Haste Not! Rest Not! 4-1381

POETRY INDEX

Goethe, Johann Wolfgang von (continued)

- Rest, 19-6988
Wild Rose, 19-6987
Goldsmith, Oliver
Deserted Village, 15-5645-47
Elegy on the Death of a Mad Dog, 3-1141
Good-bye, by R. W. Emerson, 6-2245
Good-bye, good-bye to summer, 1-324
Good-bye, proud world! I'm going home, 6-2245
Good-Children Street, by Eugene Field, 9-3340
Good Great Man, by S. T. Coleridge, 16-5867
Good King Wenceslas, Carol, 3-844
Good Little Girls, by M. M. Dodge, 3-1144
Good-morrow to you, Valentine! 5-1890
Good name in man or woman, dear my lord, 11-3932
Good-night, by Jane Taylor, 1-324
Good-night, good-night, by Joanna Baillie, 3-1009
Good people all, of every sort, 3-1141
Goosey, Goosey, Gander, 9-3343
Gosse, Edmund
Apologia, 8-3004
Blake, 8-2764
Charcoal-Burner, 10-3739
Song for the New Year, 6-2243
To Tusitala in Vailima, 10-3737
With a Copy of Herrick, 12-4348
Gould, Hannah Flagg
Name in the Sand, 13-4742
Gould, Sabine Baring, *see* Baring-Gould
Grandmother's Tale, by Pierre Jean de Beranger, 16-5921
Graves, Alfred P.
Bees, 4-1519
Bogie Man, 15-5527
Child's Evening Prayer, 2-611
German folksongs, 7-2366-67
M. N. O., 16-5712
White Hart, 19-6984
Gray, Thomas
Elegy Written in a Country Churchyard, 9-3337
Gray-haired old Farragut, 10-3643
Gray Swan, by Alice Cary, 6-2149
Great A, Little A, 16-5868
Great A, Little a, bouncing B, 7-2639
Great Adventurer, 8-2767
Great-Heart, by John Oxenham, 8-3006
Great King William spread before him, 8-2903
Great Nature Is an Army Gay, by R. W. Gilder, 14-5130
Great, wide, beautiful, wonderful world, 2-738
Greedy Boy, by Mrs. Elizabeth Turner, 3-844
Green be the turf above thee, 3-1142
Green gardens in Laventie, 12-4271
Greenaway, Kate
Five little sisters walking in a row, 19-6995
Little Miss Patty and Master Paul, 19-6995
Look over the wall, and I'll tell you why, 19-6994
Polly's, Peg's and Poppety's Mamma, 19-6995
Prince Finikin and his mamma, 19-6994
Three little girls were sitting on a rail, 19-6995
Three tabbies took out their cats to tea, 19-6995
Under the window is my garden, 19-6994
Greene, Albert Gorton
Baron's Last Banquet, 13-4742
Gregory, Charles Noble
Two Men, 11-4033
Greville, Sir Fulke
On Sir Philip Sidney, 11-4029

H

- Hail, Columbia, by Joseph Hopkinson, 5-1645
Hail to thee, blithe spirit! 16-6021
Half a league, half a league, 5-1778
Halleck, Fitz-Greene
Marco Bozzaris, 8-2765
On the Death of Joseph Rodman Drake, 3-1141
Halt! Who goes there? 16-5869
Hamadryad, 10-3484
Hamelin town's in Brunswick, 1-224
Hamerton, S. C.
Birth of Christ, 17-6108
Hannah Binding Shoes, by Lucy Larcom: quotation, 18-6442
Happiest Land, by H. W. Longfellow, 5-1780
Happiness, 7-2637

Harte, Bret

- Flynn of Virginia, 6-2244
Heathen Chinees, 4-1381
Harvest Time, by E. P. Johnson, 15-5421
Hast thou seen that lordly castle, 19-6988
Haste Not! Rest Not! by J. W. von Goethe, 4-1381
Have pity, Lord! we humbly cry, 13-4600
Have you heard of the valley of Babyland, 16-5923
Have you heard of the wonderful one-hoss shay, 9-3269
Hawkshawe, Mrs.
Common Things, 13-4744
Hay, John
Enchanted Shirt, 1-102
He comes in the night! He comes in the night! 17-6111
He fills the world with his singing, 12-4476
He is gone on the mountain, 9-3111
He lives within the hollow wood, 10-3739
He loves me, he don't, 13-4745
He quickly arms him for the field, 3-847
He spoke of Burns: men rude and rough, 9-3272
He that is down needs fear no fall, 15-5553
He that loves a rosy cheek, 9-3110
He that would thrive, 16-6028
He was an apple and she was an apple, 5-1888
Heap on more wood!—the wind is chill, 17-6106
Hear, hear, O ye nations, and hearing obey, 17-6256
Hear, O Ye Nations, by Frederick Lucian Hosmer, 17-6256
Hear the sledges with the bells—Silver bells! 16-6023
Heathen Chinees, by Bret Harte, 4-1381
Heavens in London Town, by Edward Shillito, 10-3737
Hector Protector was dressed all in green, 17-6384
Heine, Heinrich
Lorelei, 6-2035
Pretty Fisher Maiden, 19-6987
To my Sister, 19-6987
Hemans, Mrs. Felicia
Better Land, 18-6648
Casabianca, 4-1384
Homes of England, 3-845
Pilgrim Fathers, 16-6022
Henley, William Ernest
England, My England, 7-2365
Full Sea Rolls, 8-2764
Invictus, 3-1142
When You Are Old, 16-5866
Henry Hudson's Last Voyage, by Henry Van Dyke, 11-4109
Henry was every morning fed, 7-2528
Hepaticas, by Archibald Lampman, 15-5422
Her arms across her breast she laid, 2-736
Heraclitus, by William Cory, 8-3004
Herrick, George
Elixir, 12-4349
Pulley, 1-323
Unkindness, 17-6379
Here a Little Child I Stand, by Robert Herrick, 2-488
Here, a sheer hulk, lies poor Tom Bowling, 5-1781
Here am I, little Jumping Joan, 2-740
Here I come creeping, creeping everywhere, 6-2153
Here in a quiet and dusty room they lie, 14-5129
Here in the country's heart, 6-2036
Here in this picture you can see, 12-4479
Here lies whom hound did ne'er pursue, 7-2529
Here we go round a ginger ring, 6-2154
Here we go up, up, up, 18-6860
Here's a poor widow from Babylon, 6-2040
Herrick, Robert
Argument of his Book, 1-328
Cherry Ripe, 8-3002
Counsel to Girls, 5-1779
Fair Daffodils, 7-2527
Here a Little Child I Stand, 2-488
Rubies and Pearls, 16-5708
Ternarie of Littles, 17-6379
To Anthea, 19-6991
Hey, diddle diddle! the cat and the fiddle, 9-3341
Hey diddle, dinkety, poppety, pet, 7-2639
Hey, my kitten, my kitten, 18-6800
Heywood, Thomas
Lark, 8-3002

POETRY INDEX

- Hiawatha's Brothers, by H. W. Longfellow, 17-6378
Hick-a-more, Hack-a-more, 7-2368
Hickory, Dickory, Dock, 3-1147
Hickson, William Edward
Try Again, 14-4956
Higgledy, Piggledy, here we lie, 3-1010
Higgledy, Piggledy, my black hen, 4-1274
High-brow House was furnished well, 11-4032
High diddle ding, 17-6334
Common Natures, 11-4116
Hill, Aaron
Hills of Skye, by William McLennan, 10-3480
His fame shall never pass away, 16-5921
Ho! for a frolic! 5-1884
Ho, my kitten, my kitten, 15-5652
Hobby-Horse (German folksong), 7-2367
Hodgson, William Noel
Before Action, 10-3738
Hoffman, Heinrich
Hunter and the Hare, 12-4478
Johnny Head-in-air, 12-4480
Shock-headed Peter, 12-4477
Slovenly Peter: extracts from, 12-4477-80
Story of a Blackamoor, 12-4479
Story of Fidgety Philip, 12-4477
Story of Flying Robert, 12-4480
Hogg, James
Boy's Song, 2-607
Kilmeny: a Fairy Legend, 16-5863
Skylark, 3-1142
Hohenlinden, by Thomas Campbell, 3-1009
Holland, Josiah Gilbert
Christmas Carol, 14-4955
Holmes, Oliver Wendell
Lord of all Being, 4-1514
Nearing the Snow-line, 19-6874
Old Ironsides, 4-1380
Two Armies, 6-2245
What the Stars Have Seen, 5-1888
Wonderful One-Hoss Shay, 9-3269
Holyrood, by W. H. Ogilvie, 16-6022
Home no more Home to Me, by R. L. Stevenson, 9-3110
Home, Sweet Home, by John Howard Payne, 1-322
Home Thoughts, from Abroad, by Robert Browning, 10-3736
Home Thoughts in Laventie, by E. W. Tennant, 12-4271
Homer, see General Index
Homes of England, by Mrs. Felicia Hemans, 3-845
Hood, Thomas
I Remember, I Remember, 3-845
November in England, 14-5130
Queen Mab, 3-1138
Song of the Shirt, 16-5710
Hop, hop, hop! 7-2367
Hopkinson, Joseph
Hail, Columbia, 5-1645
Horace (Quintus Horatius Flaccus)
Integer Vitae, 7-2626
Horned Owl, by Barry Cornwall, 15-5523
Horse, by Jane Taylor, 15-5522
Hosmer, Frederick Lucian
Hear, O Ye Nations! 17-6256
Houghton, Richard Monckton Milne, 1st lord
Men of Old, 14-5129
Hound of Heaven, by Francis Thompson, 8-2901
House that Jack Built, 15-5651
Housekeeper, by Charles Lamb, 18-6754
How beautiful is the rain, 18-6649
How do I love thee? by Mrs. E. B. Browning, 15-5647
How doth the little busy bee, 2-484
How happy is he born or taught, 13-4599
How Horatius Kept the Bridge, by T. B. Macaulay, 10-3639
"How many miles to Babyland?" 17-6379
"How many miles to Babylon?" 3-1143
How many pounds does baby weigh? 5-1780
How Many Times" by T. L. Beddoes, 10-3644
How many times do I love thee, dear? 10-3644
How pleasant the life of a bird must be, 13-4744
How seldom, friend, a good great man inherits, 16-5867
How sleep the brave who sink to rest, 6-2029
How soon hath Time, the subtle thief, 1-328
How sweet the moonlight sleeps upon this bank! 3-836
How they Brought the Good News, by Robert Browning, 19-6867
How to Write a Letter, by Mrs. Turner, 14-4955
How would Willie like to go, 9-3274
Howard, Alice G.
Sorrow, 14-5130
Howe, Mrs. Julia Ward
Battle-hymn of the Republic, 17-6251
Howitt, Mary
Birds in Summer, 13-4744
Buttercups and Daisies, 1-323
Old Christmas, 9-3275
Spider and the Fly, 12-4269
Howitt, William
Wind in a Frolic, 1-228
Hugo, Victor
Stream and the Ocean, 10-3741
Hume, Alexander
Summer's Day, 10-3644
Humming Top, by Eugene Field, 6-2150
Hunt, Leigh
Abou Ben Adhem and the Angel, 3-1138
Jenny Kissed Me, 19-6991
Hunter and the Hare, by Heinrich Hoffman, 12-4478
Hunting Song, 6-2153
Hush, baby my dolly, I pray you don't cry, 7-2639
Hush! my dear, lie still and slumber, 14-5241
Hush! the waves are rolling in, 10-3480
Hush-a-bye, babby, lie still with thy daddy, 13-4745
Hush-a-bye, baby, Daddy is near, 13-4601
Hush-a-bye, baby, on the tree top, 8-2770
Hush-a-bye, Colin, brother of mine, 14-5132
Hushed was the evening hymn, 13-4741
Hymn of Empire, by F. G. Scott, 10-3483
Hymn of Free Russia, by Konstantin Balmont, 17-6253
Hymn on the Nativity of My Saviour, by Ben Jonson, 17-6107
Hymn to Liberty, by Nalbandian (Armenian), 17-6253
Hymn to Liberty (Greek), 17-6255

I

- I am, by E. W. Wilcox, 4-1514
I am monarch of all I survey, 19-6871
I am tired of planning and toiling, 12-4473
I am! Yet what I am who cares or knows? 12-4228
I arise from dreams of thee, 3-1142
I bring fresh showers for the thirsting flowers, 18-6647
I cannot do the big things, 7-2638
I come from haunts of coot and hern, 1-101
I dreamed one I had loved did me foul wrong, 14-5128
I envy not in any moods, 12-4344
I fled Him, down the nights and down the days, 8-2901
I had a dove, and the sweet dove died, 3-1142
I had a little moppet, 7-2639
I had a little nut-tree, nothing would it bear, 9-3342
I had a little pony, his name was Dapple Gray, 16-5713
I had a silver buckle, 7-2365
I had no thought of stormy sky, 18-6651
I have a little kinsman, 16-5866
I have a little shadow that goes in and out with me, 1-101
I have a little sister, they call her Peep, Peep, 7-2368
I have been here before, 19-6939
I have had playmates, I have had companions, 11-4115
I have loved colors and not flowers, 8-3004
I have not sinned against the God of Love, 8-3004
I have seen you, little mouse, 5-1890
I hear a shout that moves the earth, 11-4111
I hear thee speak of the better land, 18-6648
I heard a brooklet gushing, 19-6987
I Heard a Soldier, by Herbert Trench, 3-1139
I hung my verses in the wind, 13-4743
I know not that the men of old, 14-5129
I know not what sorrow is o'er me, 6-2035
I know not whence I came, 4-1514
I know that this was Life—the track, 12-4344
I lak on summer ev'ning, w'en nice cool win' is blowin', 10-3479
I live for those who love me, 9-3274

POETRY INDEX

I lived my days apart, 12-4234
 I love it, I love it; and who shall dare, 4-1516
 I love little pussy, 7-2642
 I love sixpence, pretty little sixpence, 4-1274;
 (with music) 10-3743
 I love the little flowers, 14-4957
 I love you well, my little brother, 13-4745
 I must not throw upon the floor, 6-2247
 I never saw a Purple Cow, 7-2642
 I never see the newsboys run, 13-4600
 I often wonder if our Phil, 12-4477
 I once had a sweet little doll, dears, 14-5129
 I once knew all the birds that came, 9-3108
 I passed beside the reverend walls, 12-4346
 I read that once in Affrica, 2-487
 I Remember, I Remember, by Thomas Hood, 3-845
 I said—Then, dearest, since 'tis so, 9-3109
 I said to Life, "How comes it, 19-6991
 I Saw a New World, by W. B. Rands, 19-6870
 I saw a new world in my dream, 19-6870
 I saw a ship a-sailing, 18-6800
 I saw Eternity the other night, 10-3644
 I saw three ships come sailing by, 17-6110
 I shot an arrow into the air, 13-4744
 I should like to rise and go, 3-1136
 I sing of brooks, of blossoms, birds, and
 bowers, 1-328
 I sing the Birth was born to-night, 17-6107
 I sprang to the stirrup, and Joris, and he, 19-5867-68
 I stood on the bridge at midnight, 4-1515
 I stood upon the plain, 10-3482
 I strove with none, for none was worth my
 strife, 12-4474
 I suppose if all the children, 9-3276
 I swing to the sunset land, 10-3480
 I think he had not heard of the far towns, 15-5647
 I think that I shall never see, 12-4271
 I think when I read that sweet story of old, 18-6651
 I think when I'm a grown-up man, 14-5236
 I Traveled Among Unknown Men, by William
 Wordsworth, 18-6467
 I wandered lonely as a cloud, 1-102
 I wasn't brave, I had to cry, 14-5236
 I would live, if I had my will, 10-3740
 I'd like to be a farmer, 12-4270
 If, by Rudyard Kipling, 6-2036
 If all the ships I have at sea, 5-1778
 If all the world and love were young, 9-3339
 If all the world were apple pie, 18-6800
 If bees stay at home, 14-5242
 If ever there lived a Yankee lad, 18-6795
 If I had as much money as I could spend, 2-741
 If I should die, think only this of me, 12-4273
 If I want to be happy, 8-2768
 If ifs and ans, 7-2530
 If love were what the rose is, 8-3006
 If No One Ever Marries Me, 12-4275
 If one should bring me this report, 12-4343
 If the old woman who lived in a shoe, 7-2644
 If thou shouldst ever come by choice or chance, 6-2032
 If We Had but a Day, by M. L. Dickinson, 8-2903
 If wishes were horses, 10-3743
 If you can keep your head when all about you, 6-2036
 If you sneeze on Monday, you sneeze for danger, 10-3-43
 Il Penseroso, by John Milton: extract, 1-327-28
 I'll introduce—just wait a while—, 18-6756
 I'll sing you a song, 7-2530
 I'll tell you a story, about Jack a Nory, 16-5713
 I'm a chubby little thing, 16-5869
 I'm going out a-hunting, 14-4957
 I'm very glad the spring is come, 9-3111
 "I'm writing to Mother," Alice said, 3-1139
 In a cottage in Fife, 8-3008
 In a crack near a cupboard, with dainties pro-
 vided, 3-844
 In Absence, by J. B. Tabb, 11-4114
 In After Days, by Austin Dobson, 7-2365
 In days of yore, from Britain's shore, 19-6874
 In Flanders Fields, by John McCrae, 16-5924
 In Heaven a spirit doth dwell, 1-325
 In his chamber, weak and dying, 17-6375
 In London once I lost my way, 6-2248
 In marble walls as white as milk, 7-2368
 In Memoriam, by Alfred, Lord Tennyson; ex-
 tracts, 12-4343-47
 In summer I am very glad, 12-4274

In tattered old slippers that toast at the bars, 8-2763
 In the hollow tree, in the old grey tower, 15-5523
 In the little Crimson Manual it's written plain
 and clear, 15-5421
 In the Making, by A. St. John Adcock, 12-4475
 In the midst of our laughter and singing, 18-6717
 In the name of the Empress of India, 15-5524
 In the seaport of St. Malo, 15-5418
 In vain you asked me for a song, 11-4032
 In wiser days, my darling rosebud, 9-3110
 Inchcape Rock, by Robert Southey, 7-2527
 Incident in a Railroad Car, by J. R. Lowell, 9-3272
 Incident of the French Camp, by Robert Brown-
 ing, 12-4350
 Independence Bell, 15-5648
 Indian at the Burial-place of his Fathers, by
 W. C. Bryant, 18-6650
 Industry of Animals, by Thomas Miller, 17-6380
 Ingelow, Jean
 Seven Times One, 14-4956
 Story of Life, 9-3276
 Inscription on a Silver Plate, by Eugene Field, 12-4473
 Integer Vitae, 7-2636
 Intimations of Immortality, by William Words-
 worth, 7-2633
 Into the sunshine, 2-607
 Into the Woods My Master Went, by Sidney
 Lanier, 10-3740
 Invictus, by W. E. Henley, 3-1142
 Irish Harper, by Thomas Campbell, 10-3741
 Irving, Minna
 Flag Day, 15-5650
 Is it, then, regret for buried time, 12-4347
 Is John Smith within? 18-6800
 Is there a man whose judgment clear, 6-2136
 Is there, for honest poverty, 12-4474
 Isle of Long Ago, by B. F. Taylor, 16-5709
 Israfil, by E. A. Poe, 1-325
 It happened on a summer's day, 12-4270
 It Is Common, 9-3276
 It is not growing like a tree, 3-847
 It is not the thing you do, dear, 19-6872
 It is the cause, it is the cause, my soul! 3-985
 It is the spot I came to seek, 18-6650
 It little profits that an idle king, 18-6798
 It matters little where I was born, 11-4033
 It seems the world was always bright, 12-4271
 It sleeps among the thousand hills, 15-5419
 It was a lover and his lass, 11-3935
 It was a summer evening, 2-483
 It was many and many a year ago, 2-489
 It was nothing but a rose I gave her, 18-6468
 It was roses, roses, all the way, 18-6799
 It was the calm and silent night, 18-6466
 It was the schooner Hesperus, 1-103
 It's good to see the school we knew, 16-5711
 I've wandered in the sunny South, 9-3109
 I've watched you now a full half-hour, 6-2152
 Ivy Green, by Charles Dickens, 10-3741

J

Jack and Jill, 18-6652
 Jack Frost went out on a wintry day, 17-6108
 Jack Jingle went 'prentice, 16-5868
 Jack Sprat could eat no fat, 4-1385
 Jack Sprat had a pig, 13-4602
 Jackson, Mrs. Helen Hunt
 Coronation, 9-3275
 Like a blind spinner in the sun, 6-2035
 Jacky, come give me thy fiddle, 10-3743
 Jacques Cartier, by T. D'A. McGee, 15-5418
 January brings the snow, 10-3646
 Japanese National Anthem, 17-6254
 Jealous Jack Frost, by F. E. Weatherly, 17-6108
 Jenneval, Hippolyte-Louis-Alexandre Dechet
 La Brabançonne, 17-6253
 Jenny Kissed Me, by Leigh Hunt, 19-6991
 Jesus Bids Us Shine, by E. H. Miller, 12-4350
 Jesus, Lover of my Soul, by Charles Wesley, 16-5867
 Jesus, Tender Shepherd, by M. L. Duncan, 13-4742
 Jim and George were two great lords, 9-3342
 Jock of Housham, by Sir Walter Scott, 3-847
 John Anderson, by Robert Burns, 18-6798
 John Gilpin, by William Cowper, 5-1639-43
 Johnny Head-in-air, by Heinrich Hoffman, 12-4480

POETRY INDEX

Johnson, E. Pauline
Harvest Time, 15-5421
Prairie Greyhounds, 10-3480
Song My Paddle Sings, 15-5419
Jones, Thomas S.
Sometimes, 10-3740
Jones, Sir William
So Live, 6-2036
Jonson, Ben
Hymn on the Nativity of My Saviour, 17-6107
To Celia, 2-489
True Growth, 3-847
Judas Iscariot (last part of poem), by Robert
Buchanan, 14-5239
Judge not; the workings of his brain, 16-5922
Just to be tender, just to be true, 7-2637

K

Kathleen Mavourneen, by L. M. Crawford,
1-326
Keats, John
Dove, 3-1142
Fairy Song, 2-606
La Belle Dame Sans Merci, 11-4112
Ode to a Nightingale, 5-1886
On First Looking into Chapman's Homer,
5-1645
On the Grasshopper and the Cricket, 18-6799
Realm of Fancy: quotation from, 6-2241
To Autumn, 1-325
When I Have Fears, 3-1141
Keble, John
Evening Hymn, 4-1382
Rainbow, 9-3107
Kemble, Fanny
Faith, 16-5924
Kettle, Tom
Why I Abandoned You, 9-3110
Key, Francis Scott
Star-Spangled Banner, 17-6249
Kilmeny: A Fairy Legend, by James Hogg,
16-5863-66
Kilmer, Joyce
Trees, 12-4271
King, Mrs. Harriet E.
Crocus, 12-4472
King and the Abbot, 10-3735
King Baby on His Throne, 12-4275
King Bruce and the Spider, by Eliza Cook,
15-5521
King Bruce of Scotland flung himself down,
15-5521
King Christopher stood beside the mast, 17-6252
King Cophetua and the Beggar Maid, ballad
from Reliques of Ancient English Poetry,
2-487
King John and the Abbot of Canterbury, 10-3735
Kink Lear and His Three Daughters, 5-1643-44
King Lear once ruled in his land, 5-1643-44
King's Picture, by H. B. Bostwick, 18-6648
Kingsley, Charles
Farewell, 1-102
Lost Doll, 14-5129
Sands of Dee, 1-322
Three Fishers, 15-5522
Tide River, 5-1646
Young and Old, 8-2906
Kinney, Coates
Rain on the Roof, 11-4034
Kipling, Rudyard
If, 6-2036
Overland Mail, 15-5524
Recessional, 19-6872
Who Dies if England Live? 15-5422
Kitten and the Falling Leaves, by William
Wordsworth, 14-4956
Krummacker, Friedrich Adolf
Moss Rose, 19-6987

L

La Brabançonne, by Jenneval, 17-6253
La Belle Dame Sans Merci, by John Keats,
11-4112
Ladybird, Fly (German folksong), 7-2367
La Fontaine, Jean de
Castle-Builder, 12-4270
Lion going to War, 18-6712
L'Allegro, by John Milton: extract, 1-327

Lamb, Charles
Child and the Snake, by Charles and Mary
Lamb, 7-2528
Housekeeper, 18-6754
Old Familiar Faces, 11-4115
Lamb, Mary
Child and the Snake, by Charles and Mary
Lamb, 7-2528
Lame Brother, 14-4954
Love, Death and Reputation, 19-6989
Lamb, by William Blake, 2-606
Lame Brother, by Mary Lamb, 14-4954
Lampman, Archibald
Hepaticas, 15-5422
Land of Hope and Glory, by A. C. Benson,
6-2150
Land of Nod, by R. L. Stevenson, 3-1009
Land of Thus-and-So, by J. W. Riley, 9-3274
Landor, Walter Savage
Death Undreaded, 19-6991
Finis, 12-4474
Late Leaves, 19-6992
No truer word, save God's, was ever spoken,
9-3271
Winter, 17-6378
Lanier, Sidney
Into the Woods My Master Went, 10-3740
Larcom, Lucy
Poor Lone Hannah: quotation, 18-6442
Lark, by Thomas Heywood, 8-3002
Lark-bird, lark-bird, soaring high, 12-4274
Lars Porsena of Clusium, 10-3639
Last Charge of the French at Waterloo, by
Sir Walter Scott, 15-5522
Last Ride Together: quotation, by Robert
Browning, 9-3109
Last Rose of Summer, by Thomas Moore,
16-5922
Late Leaves, by W. S. Landor, 19-6992
Laughing Brook, by Elizabeth Scantlebury,
6-2153
Lavender blue and rosemary green, 13-4602
Lay of the Last Minstrel, by Sir Walter Scott:
extract, 17-6377
Leak in the Dyke, by Phoebe Cary, 5-1777
Lear, Edward
Nonsense rhymes, 2-490-91; 3-1012
Leaves and the Wind, by George Cooper,
19-6990
Lee-Hamilton, Eugene
What the Sonnet is, 12-4475
Legaré, James Matthew
Ahab Mohammed, 18-6755
Leisure, by W. H. Davies, 9-3111
Lend me thy mare to go a mile, 13-4745
Leslie, Shane
Fleet Street, 13-4600
Lesson of the Water Mill, by Sarah Doudney,
12-4473
Let him in whom Dutch blood flows, 17-6252
Let me but do my work from day to day,
12-4272
Let me but live my life from year to year,
12-4272
Let me but love my love without disguise,
12-4272
Lewis, Matthew Gregory
Allan Water, 2-488
Life, by Mrs. A. L. Barbauld, 18-6651
Life, by Henry Van Dyke, 12-4272
Life and Thought have gone away, 10-3740
Life! I know not what thou art, 18-6651
Life in a Love, by Robert Browning, 1-325
Life-lesson, by J. W. Riley, 18-6755
Life lies before me, but shut is the door,
19-6989
Life On the Ocean Wave (song), 4-1383
Light, by F. W. Bourdillon, 17-6378
Like a blind spinner in the sun, 6-2035
Like some grey warder who with mien sedate,
12-4475
Lincoln, the Man of the People, by Edwin
Markham, 5-1645
Lines to an Indian Air, by P. B. Shelley, 3-1142
Lion and the Mouse, by Jeffreys Taylor, 3-1139
Lion going to War, by La Fontaine, 18-6712
Lisle, Rouget de, see Rouget de Lisle
Listen, my children, and you shall hear,
15-5649
Listen to the water mill, 12-4473
Little Betty Winkle she had a little pig, 5-1890
Little Bingo (song), 5-1890
Little Boat, 18-6756

POETRY INDEX

Little Bobby Snooks was fond of his books, 13-4602
 Little boy Love drew his bow at a chance, 7-2526
 Little Boy that Cried, 16-5868
 Little Busy Bee, by Isaac Watts, 2-484
 Little Children, Wake and Listen! 17-6108
 Little Cock Sparrow, 10-3485
 Little drops of water, 3-1007
 Little Giffen, by F. O. Ticknor, 6-2242
 Little Jack Horner sat in a corner, 2-740
 Little lamb, who made thee? 2-606
 Little maid, pretty maid, whither goest thou? 3-1143
 Little Man in Leather, 8-2908
 Little Miss Muffet, 4-1274
 Little Miss Patty and Master Paul, 19-6995
 Little Nanny Etticoat, 2-739
 Little Polly Flinders, 2-491
 Little Sister, by Miss Lawrence Alma-Tadema, 12-1274
 Little Sophie by the Seaside, by Charles Tennyson Turner, 16-5923
 Little Star, by Jane Taylor, 3-1138
 Little things, by E. C. Brewer, 3-1007
 Little Tom Tucker, 2-739
 Little Tommy Tittlemouse, 10-3743
 Little White Feathers, by M. M. Dodge, 3-1144
 Little White Lily, by George Macdonald, 17-6380
 Lochinvar, by Sir Walter Scott, 12-4471
 Locksley Hall: quotation, by Lord Tennyson, 9-3276
Logan, John E.
 When Summer Comes, 15-5418
 London, 1802, by William Wordsworth, 12-4349
 Long Ago, by Eugene Field, 9-3108
 Long legs, crooked thighs, 7-2368
 Long live the King in peace, 17-6253
 Long years of bondage having ended, 17-6253
Longfellow, Henry Wadsworth
 Arrow and the Song, 13-4744
 Baby and the Brook, by Leon Alishan, translation, 13-4600
 Bell of Atri, 19-6869-70
 Bridge, 4-1515
 Builders, 12-4350
 Children's Hour, 14-4955
 Day is Done, 18-6468
 Daybreak, 19-6991
 Excelsior, 2-609
 Happiest Land, 5-1780
 Hiawatha's Brothers, 17-6378
 Maidenhood, 14-5240
 Memories, 19-6989
 Nature, 14-5238
 Norman Baron, 17-6375
 Paul Revere's Ride, 15-5649
 Psalm of Life, 2-484
 Rain in summer, 18-6649
 Serenade, 19-6990
 Ship of State, 3-846
 Ships that Pass in the Night, 12-4473
 Snow-flakes, 3-1141
 Song of Birds, 14-5131
 Song of Hiawatha: extract, 19-6985-86
 Three Kings, 18-6465
 Tide Rises, the Tide Falls, 18-6467
 To the River Charles, 7-2638
 Village Blacksmith, 1-227
 Wreck of the Hesperus, 1-103
 Look over the wall, and I'll tell you why, 19-6994
Lopez de Mendonca, Henrique
 Portuguese National Hymn, 17-6254
 Lord, by whose might the Heavens stand, 10-3483
 Lord, it Belongs not to my Care, by Richard Baxter, 16-5867
 Lord, make me coy and tender to offend, 17-6379
 Lord of all Being, by O. W. Holmes, 4-1514
 Lord Ullin's Daughter, by Thomas Campbell, 2-737
 Lord, who art merciful as well as just, 7-2364
 Lorelei, by Heinrich Heine, 6-2035
 Loss of the Royal George, by William Cowper, 1-324
 Lost Doll, by Charles Kingsley, 14-5129
 Love, by Henry Van Dyke, 12-4272
 Love and Friendship, by Thomas Moore, 19-6872
 Love and the Young Knight, by T. G. Roberts, 10-3484

Love, Death and Reputation, by Mary Lamb, 19-6989
 Love in Tears, by Coventry Patmore, 14-5241
 Love Knot, by Nora Perry, 4-1518
 Love me, Sweet, with all thou art, 5-1646
 Love, won or lost, is countless gain, 14-5241
Lovelace, Richard
 To Althea from Prison, 16-5708
 To Lucasta, on Going to the Wars, 17-6376
Lover, Samuel
 Angel's Whisper, 16-5710
 Fairy Tempter, 8-2906
 Lover and His Lass, by William Shakespeare, 11-3935
 Lover's Resolution (Author's Resolution), by George Wither, 17-6376
 Love's Reasonings, by Charles Mackay, 11-4033
Lowell, James Russell
 Aladdin, 18-6468
 Courtin', 16-5922
 Fatherland, 3-846
 Fountain, 2-607
 Incident in a Railroad Car, 9-3272
 Parable, 6-2245
 Present Crisis, 7-2525
 Stanza on Freedom, 16-5867
 Vision of Sir Launfal: quotation, 4-1515
 Lucy, by William Wordsworth, 2-606
 Lucy Gray, by William Wordsworth, 3-1140
Luke, Mrs.
 I think When I Read, 18-6651
 Lullaby! O Lullaby! by W. C. Bennett, 13-4600
 Lullaby of an Infant Chief, by Sir Walter Scott, 2-736
 Lycidas, by John Milton: quotation, 4-1236-38
Lynd, Sylvia
 Return of the Goldfinches, 10-3738
Lynn, Ethel
 Weighing the Baby, 5-1780
Lyte, Henry Francis
 Abide with Me, 12-4349
 Officer's Grave, 5-1781
Lytton, Edward Bulwer-Lytton, 1st baron
 Since we Parted, 18-6651

M

M. N. O., by A. P. Graves, 16-5712
Macaulay, Thomas Babington
 Armada: a Fragment, 14-5127
 How Horatius Kept the Bridge, 10-3639
McCarroll, James
 Royal Race, 10-3481
McCaw, Isabel
 To Alfred Laliberté, 10-3483
McCrae, John
 In Flanders Fields, 16-5924
Macdonald, Elizabeth Roberts
 Secret Song, 8-2902
Macdonald, George
 Baby, 2-486
 Better Things, 4-1383
 Little White Lily, 17-6380
 Over the Hill, 9-3270
 Wind and the Moon, 16-5711
McDonnell, John F.
 Canada, 9-3109
McGee, Thomas D'Arcy
 Arctic Indian's Faith, 10-3481
 Jacques Cartier, 15-5418
Mackay, Charles
 Deed and a Word, 12-4474
 Love's Reasonings, 11-4033
 Miller of the Dee, 19-6870
 Sea-King's Burial, 14-4953
 There's a Good Time Coming, 7-2637
 William the Conqueror, 8-2903
MacLagan, Alexander
 We'll hae nane but Highland Bonnets here, 17-6254
McLellan, Isaac
 Death of Napoleon, 19-6868
McLennan, William
 Hills of Skye, 10-3480
Mahony, Francis Sylvester
 Bells of Shandon, 14-5238
 Maiden! with the meek, brown eyes, 14-5240
 Maidenhood, by H. W. Longfellow, 14-5240
 Man Who is Twelve Years Old, by Maurice Smiley, 8-2765
 Man with the Hoe, by Edwin Markham, 8-3003

POETRY INDEX

- Man's Requirements, by Mrs. E. B. Browning, 5-1646
- Maple Leaf Forever, by Alexander Muir, 19-6874
- March, by J. M. Gibbon, 15-5422
- March, by William Wordsworth, 4-1384
- March Meadows, by Miss Lawrence Alma-Tadema, 12-4274
- March of the Men of Harlech, 17-6254-55
- March winds and April showers, 17-6384
- Marching down to Armageddon, 12-4348
- Marco Bozzaris, by Fitz-Greene Halleck, 8-2765
- Maria intended a letter to write, 14-4955
- Markham, Edwin**
- Lincoln, the Man of the People, 5-1645
- Man with the Hoe, 8-3003
- Preparedness, 8-3006
- Marlowe, Christopher**
- Passionate Shepherd, 9-3274
- Marseillaise, by Rouget de Lisle, 12-4472
- Mary had a little lamb, 6-2247
- Mary had a pretty bird, 7-2639
- Mary, Mary, quite contrary, 16-5713
- Massa's in de Cold, Cold Ground, by S. C. Foster, 8-2764
- Masters, Edgar Lee**
- Ann Rutledge, 4-1514
- Match, by A. C. Swinburne, 8-3006
- Matthew, Mark, Luke and John, 2-740
- Maud Muller, by J. G. Whittier, 16-5707
- Maxwellton braes are bonnie, 1-326
- May, by J. M. Gibbon, 15-5422
- May nothing evil cross this door, 6-2242
- Memories, by H. W. Longfellow, 19-6989
- Memory, by T. B. Aldrich, 12-4348
- Memory, by William Allingham, 8-3006
- Men of Harlech! in the hollow, 17-6254-55
- Men of Old, by Lord Houghton, 14-5129
- Mercantini, Luigi**
- Garibaldi's Hymn, 17-6252
- Meredith, William T.**
- Farragut, 10-3643
- Merrily swinging on briar and weed, 15-5523
- Merry are the bells, and merry would they ring, 17-6113
- Mexican National Hymn, 17-6255
- Meynell, Alice**
- My Heart shall be Thy Garden, 16-5924
- Shepherdess, 16-6024
- 'Mid pleasures and palaces though we may roam, 1-322
- Miles, Alfred H.**
- Big and Little Things, 7-2638
- Miller, Cincinnati Heine, sec Miller, Joaquin**
- Miller, Emily H.**
- Jesus Bids Us Shine, 12-4350
- Miller, Joaquin**
- Bravest Battle that Ever was Fought, 12-4474
- Columbus, 2-485
- For Those who Fail, 12-4476
- Miller, Thomas**
- Industry of Animals, 17-6380
- Mother to Her Infant, 8-2906
- Sun, 16-5923
- Miller, William**
- Wee Willie Winkie, 2-736
- Miller of the Dee, by Charles Mackay, 19-6870
- Million Little Diamonds, 10-3644
- Millions of massive raindrops, 18-6800
- Milton, John**
- Il Penseroso: extract, 1-327-28
- L'Allegro: extract, 1-327
- Lycidas: extract, 4-1236-38
- Ode on the Morning of Christ's Nativity: quotation, 4-1236
- On His Blindness, 17-6378
- On his having arrived to the age of twenty-three, 1-328
- On the Late Massacre in Piemont, 1-328
- Paradise Lost: quotations, 4-1240-42
- Quotation on Shakespeare, 2-724
- To the Lord General Cromwell, 12-4349
- To the Nightingale, 14-5238
- Milton! thou shouldst be living at this hour, 12-4349
- Mine be a cot beside a hill, 3-846
- Mine eyes have seen the glory of the coming of the Lord, 17-6251
- Mine Host of the "Golden Apple," by Thomas Westwood, 7-2364
- Minnie and Winnie, by Alfred, Lord Tennyson, 3-1009
- Minstrel Boy, by Thomas Moore, 2-484
- Miserere Domine, by J. G. Saxe, 13-4600
- Miss Kitty was rude at the table one day, 2-492
- Miss Poppy, by F. E. Weatherly, 6-2244
- Mr. East gave a feast, 6-2154
- Molly, my sister, and I fell out, 13-4601
- Monday's child is fair of face, 6-2247
- Montgomery, James**
- A Daisy at Christmas, 18-6468
- Moore, Clement C.**
- Visit from St. Nicholas, 4-1517
- Moore, Thomas**
- As down in the Sunless Retreats, 6-2035
- Believe me, if All those Endearing Young Charms, 17-6378
- Canadian Boat-Song, 15-5419
- Last Rose of Summer, 16-5922
- Love and Friendship, 19-6872
- Minstrel Boy, 2-484
- Off in the still night, 19-6992
- She Is Far from the Land, 11-4115
- Sound the Loud Timbrel, 8-2764
- Morning and evening, 9-3103
- Morning, evening, noon and night, 13-4741
- Morris, William**
- Day Is Coming, 16-6024
- Day of Days, 12-4475
- Earthly Paradise: introduction, 9-3108
- Moss Rose, by F. A. Krummacher, 19-6987
- Mother, by Lord Tennyson, 4-1380
- Mother, may I go to swim? 6-2154
- Mother Goose rhymes, sec 20-7686-87**
- Mother Mitchell one day lost her pussy, 14-5132
- Mother, mother, the winds are at play, 4-1383
- Mother's Kisses, by L. T. Elder, 3-1139
- Mother's World, by Margaret H. Alden, 5-1645
- Mountain and the Squirrel, by R. W. Emerson, 3-846
- Mounted Police, by R. W. Service, 15-5421
- Mouse and the Cake, by Eliza Cook, 13-4743
- Much have I travell'd in the realms of gold, 5-1645
- Muir, Alexander**
- Maple Leaf Forever, 19-6874
- Müller, Wilhelm**
- Whither? 19-6987
- Mulock, Dinah Maria**
- Douglas, Douglas, Tender and True, 6-2034
- Musical Instrument, by Mrs. E. B. Browning, 5-1779
- My banks they are furnished with bees, 3-1007
- My beautiful! my beautiful! that standest meekly by, 2-608
- My boat is on the shore, 19-6989
- My child, when we were children, 19-6987
- My Country, 'Tis of Thee, by Samuel Francis Smith, 17-6251
- My dear, do you know, 7-2642
- My fairest child, I have no song to give you, 1-102
- My faith looks up to Thee, 13-4740
- My father, he died, but I can't tell you how, 9-3345
- My father he left me three acres of land, 8-3008
- My Garden, by T. E. Brown, 18-6797
- My good blade carves the casques of men, 3-1006
- My heart aches and a drowsy numbness pains, 5-1886
- My heart is like a singing bird, 4-1383
- My heart leaps up when I behold, 2-607
- My Heart Shall be Thy Garden, by Alice Meynell, 16-5924
- My Heart's in the Highlands, by Robert Burns, 4-1382
- My House, by Louis Untermeyer, 6-2242
- My house is red—a little house, 7-2642
- My Kate, by Mrs. E. B. Browning, 14-5241
- My Lady walks on diamond dust, 9-3271
- My Lady Wind, 11-4035
- My little old man and I fell out, 7-2530
- My lov'd, my honour'd, much respected friend! 13-4597
- My love is like a red, red rose, 6-2138
- My maid Mary she minds her dairy, 17-6110
- My Maryland, by J. R. Randall, 15-5524
- My Menagerie, by Mrs. Elder, 4-1516
- My mind lets go a thousand things, 12-4348
- My Mind to Me a Kingdom Is, by Sir Edward Dyer, 9-3339
- My Mother, by Jane Taylor, 2-736
- My Mother's Hands, by Ellen M. H. Gates, 5-1646
- My Old Friend, by A. C. Benson, 12-4271

POETRY INDEX

My Old Kentucky Home, by S. C. Foster, 8-3002
 My own dim life should teach me this, 12-4345
 My parents sleep both in one grave, 14-4954
 My Playmate, by J. G. Whittier, 18-6466
 My Shadow, by R. L. Stevenson, 1-101
 My Ships, by E. W. Wilcox, 5-1775
 My soul, there is a country, 12-4350
 "My strength is failing fast," 14-4953
 My true love hath my heart, and I have his, 19-6991
 My Will, by A. C. Benson, 10-3740

N

Nalbandian

Hymn to Liberty, 17-6253
 Name in the Sand, by H. F. Gould, 13-4742
 Nathan Hale, by F. M. Finch, 4-1351
 National hymns, see 17-6253-56
 Nation's Strength, by R. W. Emerson, 14-5129
 Naturalized Alien, by Lurana Sheldon, 15-5650
 Nature, by H. W. Longfellow, 14-5238
 Nearing the Snow-line, by O. W. Holmes, 19-6874
 Nesting Hour, by Miss Lawrence Alma-Tadema, 12-4274
 New Pelisse, by Miss Lawrence Alma-Tadema, 12-4274

Newbolt, Sir Henry

Best School of All, 16-5711
 Drake's Drum, 16-5924
 Torch of Life, 8-3005

Newman, John Henry

Lead, kindly light, 12-4435
 Night, by William Blake, 17-6376
 Night, by P. B. Shelley, 14-5240
 Nightingale and Glow-worm, by William Cowper, 2-606
 No need to the circus to go have I, 4-1516
 No stir in the air, no stir in the sea, 7-2527
 No sun, no moon! No morn, no noon, 14-5130
 No truer word, save God's, was ever spoken, 9-3271

Noble heroes of the sea, 17-6254
 Norman Baron, by H. W. Longfellow, 17-6375
Norton, Mrs. Caroline Sheridan
 Arab's Farewell to his Steed, 2-608
 Not a drum was heard, not a funeral note, 2-607
 Not gold, but only man can make, 14-5129
 November in England, by Thomas Hood, 14-5130
 Now, all of you, give heed unto, 18-6800
 Now came still Evening on, 4-1241
 Now fades the last long streak of snow, 12-4346
 Now, he who knows old Christmas, 9-3275
 Now the Day is Over, by Sabine Baring-Gould, 11-4034

Now the furnaces are out, 6-2242
 Now what do you think, 13-4745
Noyes, Alfred
 Slave and Emperor: quotation from, 11-4111
 Nurse's Song, by William Blake, 3-847
 Nymph's Reply to the Passionate Shepherd, by Sir Walter Raleigh, 9-3339

O

O, a wonderful stream is the River Time, 16-5709
 O, all you little Blackie-tops, 3-1148
 O beautiful for spacious skies, 17-6251
 O blithe new-comer! I have heard, 6-2033
 O Canada, by Frederick George Scott, 17-6256
 O Canada, my country and my love, 17-6256
 O Captain! my Captain! by Walt Whitman, 10-3736
 O dear, what can the matter be? 14-5242
 O fir-tree fine, 7-2367
 O God! methinks it were a happy life, 11-3930
 O God, Our Help in Ages Past, by Dr. Isaac Watts, 5-1781
 O Mammy's Pickaninny, by L. T. Elder, 19-6873
 "O Mary, go and call the cattle home," 1-322
 O my Love's like a red, red rose, 9-3274
 O nightingale that on yon bloomy spray, 14-5238
 O sailor, tell me, tell me true, 6-2149
 O say, can you see, by the dawn's early light, 17-6249
 O say, what is that thing call'd light, 3-1007
 O ship incoming from the sea, 10-3481
 O Snow-bird, Snow-bird! 8-2902
 O Swallow, Swallow, flying South, by Lord Tennyson, 1-326

O Sweet Content, by Thomas Dekker, 9-3339
 O wild West Wind, thou breath of autumn's being, 11-4113
 O, Willow, Willow, by Shakespeare, 11-3936
 O World, be Nobler, by Laurence Binyon, 12-4472
 O young Lochinvar is come out of the West, 12-4471
 October, by J. M. Gibbon, 15-5422
 Ode on St. Cecilia's Day: quotation, by John Dryden, 4-1358
 Ode on the Morning of Christ's Nativity, by John Milton: quotation, 4-1236
 Ode to a Nightingale, by John Keats, 5-1886
 Ode to the West Wind, by P. B. Shelley, 11-4113
 O'er a low couch the setting sun had thrown its latest ray, 13-4742
 Of a' the airts the wind can blaw, 6-2246
 Of all the girls that are so smart, 6-2151
 Of all the thoughts of God that are, 8-2765
 Of Heaven or Hell I have no power to sing, 9-3108
 Of Nelson and the North, 3-1140
 Off Rivière du Loup, by D. C. Scott, 10-3481
 Officer's Grave, by H. F. Lyte, 5-1781
 Oft I had heard of Lucy Gray, 3-1140
 Oft I remember those whom I have known, 19-6989
 Oft in the Stilly Night, by Thomas Moore, 19-6992
Ogilvie, Will H.
 Apple Winds, 18-6651
 Holyrood, 16-6022
 Oh, a dainty plant is the ivy green, 10-3741
 Oh, a wonderful horse is the Fly-Away Horse, 11-4111
 Oh! Boys, Carry me 'Long, by S. C. Foster, 4-1516
 Oh, Columbia, the gem of the ocean, 17-6250
 Oh, deem not they are blest alone, 19-6873
 Oh, hush thee, my baby! thy sire was a knight, 2-736
 Oh, Look at the Moon, by E. L. Follen, 7-2364
 Oh, my country, entwined on thy temples, 17-6255
 Oh, my pretty cock, 14-4957
 Oh! Paddy dear, and did you hear, the news that's goin' round? 17-6256
 Oh, ring the bells! 8-2907
 Oh, to be in England, 10-3736
 Oh, to have died that day at Langemarek, 15-5422
 Oh, was I born too soon, my dear, or were you born too late, 11-4114
 Oh where, and oh where, is my little wee dog? 6-2154
 Oh, where are all the good little girls? 3-1144
 Oh, who is so merry, so merry, heigh ho! 15-5652
 Oh, who would keep a little bird confined, 12-4270
 Oh ye who so lately were blithesome and gay, 10-3644
 Oh, yet we trust that somehow good, 12-4345
O'Hara, Theodore
 Bivouac of the Dead, 8-2867
 Old Abram Brown is dead and gone, 7-2530
 Old Arm-Chair, by Eliza Cook, 4-1516
 Old Christmas, by Mary Howitt, 9-3275
 Old Christmas, by Sir Walter Scott, 17-6106
 Old Cloak, 19-6992
 Old Familiar Faces, by Charles Lamb, 11-4115
 Old Folks at Home, by S. C. Foster, 4-1350
 Old Friends, 17-6378
 Old Ironsides, by O. W. Holmes, 4-1350
 Old King Cole, 11-4118
 Old Mother Goose and her gander, 16-5930-31
 Old Mother Goose, when she wanted to wander, 16-5930-31
 Old Mother Hubbard, 16-5925
 Old Mother Twitchett had but one eye, 7-2368
 Old Woman and her Pig, 15-5525
 Old woman, old woman, shall we go a-shearing, 3-1113
 Ole Tam on Bord-a-Pleuffe, by W. H. Drummond, 10-4479
 Omission, by M. E. Sangster, 19-6872
 On came the whirlwind—like the last, 15-5422
 On Christmas Eve I turned the spit, 16-5868
 On First Looking Into Chapman's Homer, by John Keats, 5-1645
 On hills that see by night his ain, 15-5643
 On His Blindness, by John Milton, 17-6378
 On Linden, when the sun was low, 3-1665
 On parent knees, a naked new-born child, 6-2036

POETRY INDEX

- On Saturday night, 7-2639
On Sir Philip Sidney, by Sir Fulke-Greville, 11-4029
On the banks of Allan Water, 2-488
On the bridge of Avignon, 6-2248
On the Death of Joseph Rodman Drake, by Fitz-Greene Halleck, 3-1142
On the Grasshopper and the Cricket, by John Keats, 18-6799
On the green banks of Shannon, when Sheelah was nigh, 10-3741
On the Late Massacre in Piemont, by John Milton, 1-328
On the Road, by C. G. D. Roberts, 11-4114
On Vimy Ridge and Passchendael, 9-3271
Once a little boy, Jack, was ever so good, 16-5868
Once in Persia ruled a King, 1-323
Once in Royal David's City, by Mrs. Alexander, 17-6108
Once on a time, Love, Death, and Reputation, 19-6989
Once upon a midnight dreary, 18-6753-54
One and One, by M. M. Dodge, 3-1144
One hot summer day a hunter went out, 12-4478
One, I love; two, I love, 7-2644
One lesson, Nature, let me learn of thee, 18-6650
One misty, moisty morning, 17-6384
One moisty morning, 8-2908
One not learned, save in gracious household ways, 4-1380
One of Us Two, by E. W. Wilcox, 18-6651
One sail in sight upon the lonely sea, 11-4109
One, two, buckle my shoe, 17-6381
One, two, three, four, five, 14-4957
One was a king, and wide domain, 11-4033
Only a Baby Small, by Matthias Barr, 5-1887
Only a boy, with his noise and fun, 11-4030
Opportunity, by E. R. Sill, 2-488
Oranges and lemons, 16-5932
O'Reilly, John Boyle
Cry of the Dreamer, 12-4473
Orpheus and his Lute, by William Shakespeare, 8-3004
Orpheus with his lute made trees, 8-3004
Orsames' Song, by Sir John Suckling, 17-6376
O'Shaughnessy, Arthur
St. John the Baptist, 15-5647
We are the Dreamers of Dreams, 16-5709
We, in the ages lying, 12-4234
O'Sullivan, Seumas
Piper, 9-3110
Others abide our question. Thou art free, 7-2365
Our band is few, but true and tried, 11-4032
Our gentle alchemist, the sun, 15-5422
Our land, our land, our Fatherland, 17-6252
Our Norland, by Charles Sangster, 15-5417
Our revels now are ended, 3-986
Our Swedish feelings for our king, 17-6253
Out and in the river is winding, 15-5420
Out of me unworthy and unknown, 4-1514
Out of the bosom of the air, 3-1141
Out of the dusk, wind-blown and thin, 11-4114
Out of the focal and foremost fire, 6-2242
Out of the frozen earth below, 12-4472
Out of the night that covers me, 3-1142
Over hill, over dale, 6-2152
Over the Hill, by George Macdonald, 9-3270
Over the mountains and over the waves, 8-2767
Over the river and through the wood, 19-6873
Over the Sea to Skye, 15-5643
Overland Mail, by Rudyard Kipling, 15-5524
Owl, by Lord Tennyson, 6-2153
Owl-Critic, by J. T. Field, 7-2640
Oxenham, John
Diamond Dust, 9-3271
Great-Heart, 8-3006
What Can a Little Chap Do? 6-2036
- P**
- Pack, clouds, away, and welcome, day, 8-3002
Palgrave, Francis Turner
Paulinus and Edwin, 6-2246
Palmer, Ray
Faith, 13-4740
Parable, by J. R. Lowell, 6-2245
Paradise Lost; quotations, by John Milton, 4-1240-42
Parrot, by Thomas Campbell, 4-1384
Passionate Shepherd, by Christopher Marlowe, 9-3274
Pat-a-cake, pat-a-cake, baker's man, 3-1010
Patmore, Coventry
Love in Tears, 14-5241
Round of the Year, 12-4475
Patriot, by Robert Browning, 18-6799
Paul Revere's Ride, by H. W. Longfellow, 15-5649
Paulinus and Edwin, by F. T. Palgrave, 6-2246
Payne, John Howard
Home, Sweet Home, 1-322
Peace, by Henry Vaughan, 12-4350
Peacock, Thomas Love
Priest and the Mulberry Tree, 16-5708
Pease-pudding hot, 4-1274
Peg, peg, with a wooden leg, 7-2639
Pemmy was a pretty girl, 9-3112
Perry, Nora
Love Knot, 4-1518
Pet Lamb, by William Wordsworth, 6-2031
Peter Bell, by William Wordsworth, selection from, 12-4347
Peter, Peter, pumpkin eater, 13-4601
Peter Piper picked a peck of pickled pepper, 2-739
Pictures in the Fire, by Adelaide A. Procter, 2-738
Pied Piper of Hamelin, by Robert Browning, 1-224
Pierpont, John
Warren's Address to the American Soldiers, 19-6990
Pilgrim, by John Bunyan, 9-3338
Pilgrim Fathers, by Felicia Hemans, 16-6022
Pillowed and hushed on the silent plain, 15-5421
Piper, by Seumas O'Sullivan, 9-3110
Piper, Play! by John Davidson, 6-2242
Piping Down the Valleys Wild, by William Blake, 8-2764
Pittypat and Tippytoe, by Eugene Field, 10-3484
Plains of Abraham, by Charles Sangster, 10-3482
Planting the Apple-tree, by W. C. Bryant, 18-6648-49
Platt, John James
Rose and Root, 12-4348
Playgrounds, by Miss Lawrence Alma-Tadema, 12-4274
Poe, Edgar Allan
Annabel Lee, 2-489
Bells, 16-6023
Israfel, 1-325
Raven, 18-6753-54
Poet and King, by Eugene Field, 12-4476
Poet and the Bird, by Mrs. E. B. Browning, 11-4033
Poland's not a slave forever while her sons alive remain, 17-6256
Polly, put the kettle on, 7-2643
Polly's, Peg's and Poppety's mamma was kind and good, 19-6995
Poor Babes in the Wood, 6-2155
Poor Billy boy was music mad, 3-1144
Poor Dicky's dead! 14-4957
Poor old Robinson Crusoe! 6-2154
Portuguese National Hymn, by H. L. de Mendonça, 17-6254
Prairie Greyhounds, by E. P. Johnson, 10-3480
Prayer, by Robert Southey, 7-2364
Prayers, by H. C. Beeching, 10-3739
Preparedness, by Edwin Markham, 8-3006
Present Crisis, by J. R. Lowell, 7-2525
Pretty Fisher Maiden, by Heinrich Heine, 19-6987
Pretty flowers, tell me why, 18-6472
Pretty maid, pretty maid, 4-1274
Priest and the Mulberry Tree, by T. L. Peacock, 16-5708
Prince Finklin and his mamma, 19-6994
Princess, by Lord Tennyson, selections from, 1-326; 14-5131; 17-6378
Pringle, Thomas
Afar in the Desert, 6-2035
Procter, Adelaide Anne
Pictures in the Fire, 2-738
Procter, Bryan Waller, see Cornwall, Barry
Prospect, by Robert Browning, 3-1006
Psalm of Life, by H. W. Longfellow, 2-484
Pulley, by George Herbert, 1-323
Punch and Judy fought for a pie, 13-4601
Pussy-cat Mew jumped over a coal, 13-4602
Pussy-cat Mole jumped over a coal, 16-5713
Pussy cat, pussy cat, where have you been? 10-3645; (with music), 11-4117
Pussy sits beside the fire, 13-4745

POETRY INDEX

Q

Quebec, by F. G. Scott, 12-4475
 Queen and the Flowers, by Alfred Austin, 6-2033
 Queen Anne, Queen Anne, she sits in the sun, 8-3008
 Queen Mab, by Thomas Hood, 3-1138
 Queen Mab and Her Fairies, 7-2636
 Quiet Work, by Matthew Arnold, 18-6650

R

Rain in Summer, by H. W. Longfellow, 18-6649
 Rain on the Roof, by Coates Kinney, 11-4034
 Rainbow, by John Keble, 9-3107
 Rainbow, by William Wordsworth, 2-607
Raleigh, Sir Walter
 Conclusion, 14-4970
 Nymph's Reply to the Passionate Shepherd, 9-3339
Randall, James Ryder
 My Maryland, 15-5524
Rands, William Brighty
 Flowers, 6-2244
 I saw a New World, 19-6870
 World, 2-738
 Rapid, by Charles Sangster, 15-5421
 Raven, by E. A. Poe, 18-6753-54
Read, T. Buchanan
 Sheridan's Ride, 19-6868
 Realm of Fancy, by John Keats, quotation from, 6-2241
 Reaper, by William Wordsworth, 14-4954
 Recessional, by Rudyard Kipling, 19-6872
 Reconciliation, by Lord Tennyson, 17-6378
 Red, Red Rose, by Robert Burns, 9-3274
 Red River Voyageur, by J. G. Whittier, 15-5420
 Remember, remember, the fifth of November, 6-2154
 Rencontre, by Henry van Dyke, 11-4114
 Rest, by J. W. von Goethe, 19-6988
 Rest is not quitting the busy career, 19-6988
 Retired Cat, by William Cowper, 5-1780
 Return of the Goldfinches, by Sylvia Lynd, 10-3738
 Revenge, by Lord Tennyson, 13-4739
 Ride a cock horse, 19-6996
 Ride away, ride away, 17-6110
Riley, James Whitcomb
 Land of Thus-and-So, 9-3274
 Life-lesson, 18-6755
 Ring Out, Wild Bells, by Lord Tennyson, 17-6109
 Ring-ting, I wish I were a primrose, 3-1007
 "Rise up, rise up, now, Lord Douglas," 11-4112
 River, by F. G. Scott, 10-3481
 River that in silence windest, 7-2638
 "Robert Barnes, fellow fine," 8-3008
 Robert of Lincoln, by W. C. Bryant, 15-5523
Roberts, Charles G. D.
 On the Road, 11-4114
Roberts, Theodore Goodridge
 The Hamadryad, 10-3484
 Love and the Young Knight, 10-3484
Roberts, William Carman
 At Twilight, 11-4114
 Robin-a-Robin, 13-4602
 Robin and Richard were two pretty men, 2-740
 Robin-friend has gone to bed, 12-4274
 Robin Redbreast, by William Allingham, 1-324
 Robin the Bobbin, the big, greedy Ben, 10-3743
 Rock-a-bye Lady, by Eugene Field, 18-6469
 Rock of Ages, by A. M. Toplady, 7-2364
Rogers, Samuel
 Ginevra, 6-2032
 Wish, 3-846
Ronsard, Pierre de
 Welcome to Spring, 7-2364
Roscoe, William
 Butterfly's Ball, 3-1008
 Rose, by Edmund Waller, 19-6874
 Rose and Root, by J. J. Platt, 12-4348
Rossetti, Christina
 Birthday, 4-1383
 Goblin Market, 9-3103
 Up-hill, 12-4472
Rossetti, Dante Gabriel
 Blessed Damsel, 8-2904
 Sudden Light, 19-6889
Rouget de Lisle
 The Marseillaise, 12-4472
 Round de meadows am a-ringing, 8-2764
 Round of the Year, by Coventry Patmore, 12-4475

Rouse, rouse, ye kilted warriors, 15-5641
Routhier, Basile
 Chant National, 17-3256
 Rowley, Powley, pudding and pie, 2-492
 Royal Race, by James McCarroll, 10-3481
 Rub-a-dub-dub, three men in a tub, 14-4957
 Rubies and Pearls, by Robert Herrick, 16-5708
 Rule, Britannia! by James Thomson, 2-486
 Rumanian National Hymn, 17-6253
Runeberg, Johan Ludvig
 Vart land, 17-6252

S

Said a people to a poet, 11-4033
 Said Love to the young knight, 10-3484
 Said the Wind to the Moon, 16-5711
 Sail on, sail on, O Ship of State, 3-846
 St. Agnes' Eve, by Lord Tennyson, 19-6874
 St. John the Baptist, by Arthur O'Shaughnessy, 15-5647
 Sally in our Alley, by Henry Carey, 6-2151
 Sammy Smith would drink and eat, 3-844
 Sands of Dee, by Charles Kingsley, 1-322
Sangster, Charles
 Our Norland, 15-5417
 Plains of Abraham, 10-3482
 Rapid, 15-5421
Sangster, Margaret E.
 Omission, 19-6872
Sassoon, Siegfried
 I lived my days apart, 12-4234
Saxe, John Godfrey
 Miserere Domine, 13-4600
 Say, Heavenly Muse, shall not thy sacred vein, 4-1236
 Say not, because he did no wondrous deed, 11-4030
 Say Not, the Struggle Naught Availeth, by A. H. Clough, 17-6380
Scantlebury, Elizabeth
 Laughing Brook, 6-2153
Schneckenburger, Max
 Die Wacht am Rhein, 17-6254
 Scots, wha hae wi' Wallace bled—, 2-738
Scott, Duncan Campbell
 Off Rivière du Loup, 10-3481
Scott, Frederick George
 Colors of the Flag, 10-3482
 Hymn of Empire, 10-3483
 O Canada, 17-6256
 Quebec, 12-4475
 River, 10-3481
 Unnamed Lake, 15-5419
 Warders, 9-3271
Scott, Sir Walter
 Coronach, 9-3111
 Jock of Hazeldean, 3-847
 Last charge of the French at Waterloo, 15-5522
 Lay of the Last Minstrel: extract, 17-6377
 Lochinvar, 12-4471
 Lullaby of an Infant Chief, 2-736
 Old Christmas, 17-6106
 Sound Loud the Clarion, 8-2906
 Time, 11-4030
 Sea, by Barry Cornwall, 19-6871
 Sea-gull, sea-gull, sit on the sand, 3-1010
 Sea-King's Burial, by Charles Mackay, 14-4953
 Season of mists and mellow fruitfulness, 1-325
 Secret Song, by E. R. Macdonald, 8-2902
 See a pin and pick it up, 7-2642
 See-saw, Margery Daw, 2-789
 See the kitten on the wall, 14-4956
 Seed Shop, by Muriel Stuart, 14-5129
 Selkirk Grace, by Robert Burns, 12-4475
 Serbian National Hymn, 17-6255
 Serenade, by H. W. Longfellow, 19-6990
 Serene, I fold my hands and wait, 6-2244
Service, Robert W.
 Mounted Police, 15-5421
 Seven Ages of Man, from Shakespeare's As You Like It, 11-3933
 Seven Times One, by Jean Ingelow, 14-4956
 Shakespeare, by Matthew Arnold, 7-2365
Shakespeare, William
 Ariel's Song: quotation from, 8-2689
 Blow, blow, thou winter wind, 3-838
 Come unto these yellow sands (song in The Tempest), 3-886
 Fairy Life, 6-2152
 Fairy Lullaby, 6-2153
 Fear no more the heat o' the sun, 3-986

POETRY INDEX

Shakespeare, William (*continued*)

- Full fathom five thy father lies (song in *The Tempest*), 3-986
Hamlet: extracts from, 11-3927, 3932
Henry V.: extracts from, 11-3931
Henry VIII.: extracts from, 11-3928
Julius Cæsar: extracts from, 11-3929-31
Lover and His Lass, 11-3935
O, Willow, Willow, 11-3936
Orpheus and his Lute, 8-3004
 quotations from, 11-3927-33
Sigh No More, Ladies, 9-3339
Silvia, 18-6798; (with music) 11-3934
Sonnets
 From you I have been absent in the Spring, 2-724
 Shall I compare thee to a summer's day? 2-724
 Under the Greenwood Tree, 6-2152
 When icicles hang by the wall, 3-834
 Where the bee sucks there lurk I (song in *The Tempest*), 3-986
 Who is Sylvia? 18-6798; (with music), 11-3934
 Winter Song, 6-2152
 You spotted snakes, with double tongue, 3-838
 Shall I compare thee to a summer's day? 2-724
 "Shall I sing?" says the Lark, 8-2907
 Shall I, wasting in despair, 17-6376
Shanley, Charles Dawson
 Walker of the Snow, 15-5420
 She dwelt among the untrodden ways, 2-606
 She has laughed as softly as if she sighed, 13-4743
 She is a winsome wee thing, 6-2136
 She Is Far from the Land, by Thomas Moore, 11-4115
 She Walks in Beauty, by Lord Byron, 8-2903
 She walks—the lady of my delight, 16-6024
 She Was a Phantom of Delight, by William Wordsworth, 8-2903
 She was not as pretty as women I know, 14-5241
 Shed no tear! O, shed no tear! 2-606
Sheldon, Lurana
 Naturalized Alien, 15-5650
 When the Call is Sounded, 15-5650
Shelley, Percy Bysshe
 Autumn, 4-1515
 Cloud, 18-6647
 Lines to an Indian Air, 3-1142
 Night, 14-5240
 Ode to the West Wind, 11-4113
 quotations from, 7-2491-92
 To a Skylark, 16-6021
 To the Moon, 2-489
Shenstone, William
 Shepherd's Cot, 3-1007
 Shepherdess, 18-6756
 Shepherdess, by Alice Meynell, 16-6024
 Shepherd's Cot, by William Shenstone, 3-1007
 Sheridan's Ride, by T. B. Read, 19-6868
Shillito, Edward
 Heavens in London Town, 10-3737
 Ship of State, by H. W. Longfellow, 3-846
 Ships that Pass in the Night, by H. W. Longfellow, 12-4473
 Shock-headed Peter, by Heinrich Hoffman, 12-4477
 Should auld acquaintance be forgot, 17-6380
 Shuffle-Shoon and Amber-Locks, by Eugene Field, 19-6993
 Shut-Eye Train, by Eugene Field, 9-3108
Sidney, Sir Philip
 Bargain, 19-6991
 Sigh, by H. P. Spofford, 18-6168
Sigh No More, Ladies, by William Shakespeare, 9-3339
 Silence augmenteth grief, writing increaseth rage, 11-4029
 Silent Voices, by Lord Tennyson, 4-1516
Sill, Edward Rowland
 Fool's Prayer, 2-488
 Opportunity, 2-488
Silvia, by William Shakespeare, 18-6798; (with music), 11-3934
 Simon Brodie had a cow, 7-2639
 Simple Simon met a pleman, 18-6653
 Since We Parted, by E. B. Lytton, 18-6651
 Sing a song of sixpence (with music) 2-610; 18-5928
 Sing, sing, what shall I sing? 2-739
 Sing, ye ripening fields of wheat, 15-5421
 Singer, by J. A. Symonds, 12-4476
 Sir Galahad, by Lord Tennyson, 3-1006
Skrzynecki, Jan Boncza
 Jezcze Polska, 17-6256
 Skylark, by James Hogg, 3-1142
 Slave and Emperor: quotation from, by Alfred Noyes, 11-4111
 Sleep, by E. B. Browning, 8-2765
 Sleep, Baby, Sleep, 14-5238
 Sleep, baby, sleep, our cottage vale is deep, 3-1143
 Sleep, Beauty Bright, by William Blake, 3-848
 Sleep, sleep, beauty bright, 3-848
 Sleep, sonny darling, your mother's delight, 7-2366
 Slovenly Peter, by Heinrich Hoffman: extracts from, 12-4477-80
 Slow toiling upward from the misty vale, 19-6874
 Sluggard, by Isaac Watts, 2-606
 Slumber, my darling, no danger is near, 8-2906
Smiley, Maurice
 Man Who Is Twelve Years Old, 8-2765
Smith, Samuel Francis
 My Country, 'Tis of Thee, 17-6251
 Snow-Flakes, by H. W. Longfellow, 3-1141
 Snow-Storm, by R. W. Emerson, 8-2906
 So are the stars and the arching skies, 9-3276
 So Live, by Sir William Jones, 6-2036
 Soldier, by Rupert Brooke, 12-4273
 Solomon Grundy, 10-3645
 Some asked me where the rubies grew, 16-5708
 Some hae meat, and canna eat, 12-4475
 Some little mice sat in a barn to spin, 5-1890
 Some of your hurts you have cured, 16-6024
 Somebody crawls into mamma's bed, 2-482
 Somebody's Mother, 18-6649
 Sometimes, by T. S. Jones, 10-3740
 Somewhere it is always light, 16-5923
 Son of My Heart (German folksong), 7-2366
 Song for St. Cecilia's Day, by John Dryden, 4-1270
 Song for the New Year, by Edmund Gosse, 6-2243
 Song my Paddle Sings, by E. P. Johnson, 15-5419
 Song of Birds, by H. W. Longfellow, 14-5131
 Song of Hiawatha, by H. W. Longfellow: extract, 19-6985
 Song of Marion's Men, by W. C. Bryant, 11-4032
 Song of Sixpence, 16-5928 (with music) 2-610
 Song of the Bow, by Sir A. C. Doyle, 9-3107
 Song of the Camp, by Bayard Taylor, 6-2034
 Song of the Golden Sea, by Jean Blewett, 15-5421
 Song of the Shirt, by Thomas Hood, 16-5710
 Song of the Two Hares, 7-2366
Songs, with music, see General Index
 Sonner af Norge, by H. A. Bierregaard, 17-6253
Sonnets, see General Index for list of sonnets
 Sons of Dear Norway, by H. A. Bierregaard, 17-6253
 Sorrow, by A. G. Howard, 14-5130
 Sound Loud the Clarion, by Sir Walter Scott, 8-2906
 Sound, sound the clarion, fill the fife, 8-2906
Southey, Robert
 Battle of Blenheim, 2-483
 Father William, 2-484
 Inchcape Rock, 7-2527
 Prayer, 7-2364
 Traveler's Return, 7-2527
 Southrons, hear your country call you, 17-6250
 Spacious Firmament on High, by Joseph Addison, 13-4600
 Spare is her head and lean, 6-2014
 Speak Gently, (probably) by David Bates, 18-6755
 Speed, bonny boat, like a bird on the wing, 15-5643
 Speed on, speed on, good Master, 15-5420
 Spider and the Fly, by Mary Howitt, 12-4269
Spofford, Harriet Prescott
 Sigh, 18-6468
 Stand! the ground's your own, my braves, 19-6990
 Star-Spangled Banner, by Francis Scott Key, 17-6249
 Stars, by Barry Cornwall, 2-609
 Stars of the summer night, 19-6990
 Stay near me—do not take thy flight! 16-6024

POETRY INDEX

Stedman, Edmund Clarence

Discoverer, 16-5866

Stevenson, Robert Louis

Armies in the Fire, 1-101

Home no more Home to Me, 9-3110

Land of Nod, 3-1009

My Shadow, 1-101

Travel, poem, 3-1136-37

Under the wide and starry sky, 8-2869

Unseen Playmate, 2-608

Stodart, M. A.

Walk in Spring, 9-3111

Stoddard, Richard Henry

Birds, 8-2764

Flight of the Arrow, 16-5866

Flight of Youth, 13-6650

Stormy Petrel, by Barry Cornwall, 14-5130

Story of a Blackamoor, by Heinrich Hoffman,

12-4479

Story of Fidgety Philip, by Heinrich Hoffman,

12-4477

Story of Flying Robert, by Heinrich Hoffman,

12-4480

Story of Life, by Jean Ingelow, 9-3276

Straight is the path of duty, 4-1386

Strandberg, Karl Wilhelm August

Ur Svenska Hjertans, 17-6253

Stream and the Ocean, by Victor Hugo, 10-3741

Strong Son of God, immortal Love, 12-4343

Stuart, Muriel

Seed Shop, 14-5129

Such beautiful, beautiful hands! 5-1646

Suckling, Sir John

Orsames' Song, 17-6376

Sudden Light, by D. G. Rossetti, 19-6989

Sum, sum, sum! bees about us hum! 4-1519

Summer has doft his latest green, 17-6378

Summer is a-coming in, 10-3497; (in manuscript with music), 19-6903

Summer's Day, by Alexander Hume, 10-3644

Sun, by Thomas Miller, 16-5923

Sun of my soul, thou Saviour dear, 4-1382

Sun Was Falling off to Sleep, by Harold

Begbie, 8-3007

Sunset and evening star, 4-1382

Suppose the Little Cowslip, 6-2246

Sweet and Low, by Lord Tennyson, 1-322

Sweet Auburn! loveliest village of the plain, 15-5645-47

Sweet is childhood—childhood's over, 9-3276

Sweet to the morning traveler, 7-2527

Sweetest Lives, by Mrs. E. B. Browning, 4-1380

Swiftly walk o'er the western wave, 14-5240

Swinburne, Algernon Charles

Atalanta in Calydon, Chorus from, 6-2242

Match, 8-3006

Swiss National Hymn, 17-6255

Symonds, John Addington

Beati Illi, 14-5131

Blame, 10-3738

Farewell, 16-5924

Singer, 12-4476

Symons, Arthur

Amends to Nature, 8-3004

T

Tabb, John Banister

Foot Soldiers, 11-4111

In Absence, 11-4114

Taffy was a Welshman, Taffy was a thief, 3-1010

Talking in their Sleep, by E. M. Thomas, 9-3111

Taylor, Bayard

Bedouin Song, 9-3270

Song of the Camp, 6-2034

Taylor, Benjamin Franklin

Isle of Long Ago, 16-5709

Taylor, Jane

Good-night, 1-324

Horse, 15-5522

Little star, 3-1138

My Mother, 2-736

Violet, 2-489

Taylor, Jeffreys

Lion and the Mouse, 3-1139

Young Mouse, 3-844

Teach me, my God and King, 12-4349

Tears, Idle Tears, by Lord Tennyson, 5-1779

Teeny-Weeny, by Eugene Field, 11-4036

Tell me not, in mournful numbers, 2-484

Tell me not, sweet, I am unkind, 17-6376

Tell tale tit, 4-1386

Tender-handed stroke a nettle, 11-4116

Tennant, Edward Wyndham

Home Thoughts in Laventie, 12-4271

Tennyson, Alfred, Lord

Beggar Maid, 2-736

Break! break! break! 6-2151

Brook, 1-101

Bugle, 8-2903

Charge of the Light Brigade, 5-1778

Come into the Garden, Maud, 4-1270

Cradle Song, 3-848

Crossing the Bar, 4-1382

Death of the Old Year, 17-6109

Deserted House, 10-3740

Idylls of the King, selection from, 19-6953

In Memoriam: quotation, 12-4343-47

Locksley Hall: quotation, 9-3276

Minnie and Winnie, 3-1009

Mother, 4-1380

O Swallow, Swallow, flying South, 1-326

Owl, 6-2153

Princess: quotations, 1-326; 14-5131; 17-6378

Reconciliation, 17-6378

Revenge, 13-4739-40

Ring Out, Wild Bells, 17-6109

St. Agnes' Eve, 19-6874

Silent Voices, 4-1516

Sir Galahad, 3-1006

Sweet and Low, 1-322

Tears, Idle Tears, 5-1779

Ulysses, 18-6798

Vision of the Future, from Locksley Hall, 9-3276

Tennyson Turner, Charles, see Turner

Ternarie of Littles, by Robert Herrick, 17-6378

Terrible Ball, by M. M. Dodge, 3-848

Test, by R. W. Emerson, 13-4743

Thackeray, William Makepeace

Cane-bottomed Chair, 8-2763

Tragic Story (poem), translated from the German, 3-1139

Thanksgiving Day, by L. M. Child, 19-6873

The Angel of the flowers, one day, 19-6987

The Assyrian came down like the wolf on the fold, 19-6990

The bairnies cuddle doon at nicht, 11-4116

The baker's wife has sacks of gold, 14-5132

The black-haired, gaunt Paulinus, 6-2246

The blessed damozel leaned out, 8-2904

The bloom is on the may once more, 8-3004

The boy stood on the burning deck, 4-1384

The bravest battle that ever was fought, 12-4474

The breaking waves dashed high, 16-6022

The cock doth crow, 7-2530

The cock is crowing, 4-1384

The crocus, while the days are dark, 12-4475

The cuckoo's a bonny bird, 3-1143

The curfew tolls the knell of parting day, 9-3337

The Danube to the Severn gave, 12-4344

The day is done, and the darkness, 18-6468

The day Thou gavest, Lord, is ended, 6-2243

The day will dawn when one of us shall hearken, 18-6651

The despot's heel is on thy shore, 15-5524

The dew was falling fast, the stars began to blink, 6-2031

The dove says, "Coo, coo, what shall I do?" 15-5652

The end is never afar, 12-4475

The fair maid, who, the First of May, 4-1274

The fairest action of our human life, 5-1887

The first Nowell the Angels did say, 18-6466

The flag—it stands for hearth and home, 15-5650

The formless lump of clay the Master takes, 10-3483

The fox and his wife, they had a great strife, 17-6382-83

The frost looked forth one still, clear night, 6-2148

The frugal snail, with forecast of repose, 18-6754

The girl in the lane, that couldn't speak plain, 5-1890

The good dame looked from her cottage, 5-1777

The gossip of the village—see, 13-4743

The groves were God's first temples, 10-3741

The hands are still dear hands, 19-6874

The hart he loves the high wood, 6-2154

The hill of crosses may be steep, boys, 16-6023

The hunt is up, the hunt is up, 6-2153

The king from the council chamber, 18-6648

POETRY INDEX

- The king of clubs, he often drubs, 7-2639
The King of France, and four thousand men, 9-3342
The King of France went up the hill, 7-2530
The King was on his throne, 7-2529
The King was sick. His cheek was red, 1-102
The lamps now glitter down the streets, 1-101
The land I claim claims me! 15-5650
The leaves are falling; so am I, 19-6992
The life of man, is an arrow's flight, 16-5866
The lilies of the valley chime, 7-2366
The lion and the unicorn, 8-2769
The lion had an enterprise in hand, 18-6712
The little birds are singing, 5-1888
The Lord my pasture shall prepare, 2-486
The lute-voiced birds rise with the light, 17-6380
The man in the moon, 7-2530
The man in the wilderness asked me, 7-2639
The melancholy days are come, the saddest of the year, 18-6799
The minstrel boy to the war has gone 2-484
The moon held court in Holyrood last night, 16-6022
The mountain and the squirrel had a quarrel, 3-946
The muffled drum's sad roll has beat, 8-2767
The night has a thousand eyes, 17-6378
The noon was shady, and soft airs, 7-2528
The north wind doth blow, 3-1138
The Owl and the Pussy Cat went to sea, 6-2247
The path by which we twain did go, 12-4344
The pines were dark on Ramoth hill, 18-6466
The poetry of earth is never dead, 18-6799
The pure, the bright, the beautiful, 5-1887
The quality of mercy is not strained, 11-3932
The Queen of Hearts, 9-3344
The robin and the red-breast, 8-2907
The robin and the wren, 7-2639
The Rock-a-bye Lady from Hush-a-bye Street, 18-6469
The rose aloft in sunny air, 12-4348
The royal feast was done; the king, 2-488
The sea! the sea! the open sea, 19-6871
The shades of night were falling fast, 2-609
The sorrow that nobody mentions, 14-5130
The spacious firmament on high, 13-4600
The splendour falls on castle walls, 8-2903
The stately homes of England, 3-845
The streamlet down from the mountainous glen, 10-3741
The sun descending in the west, 17-6376
The sun is a glorious thing, 13-4744
The sun is down, and time gone by, 3-1009
The sun, one fine evening, on high, 8-2907
The sun shines bright in the old Kentucky home, 8-3002
The sun was falling off to sleep, 8-3007
The sun was shining on the sea, 6-2037
The sweetest lives are those to duty wed, 4-1380
The swift is wheeling and gleaming, 11-4032
The throne was reared upon the grass, 4-1271
The Tide Rises, the Tide Falls, by H. W. Longfellow, 18-6467
The time draws near the birth of Christ, 12-4344
The time so tranquil is and still, 10-3644
The top it hummeth a sweet, sweet song, 6-2150
The trees to their innermost marrow, 15-5422
The warm sun is failing, the bleak wind is wailing, 4-1515
The way was long, the wind was cold, 17-6377
The white dove sat on the castle wall, 13-4745
The wind one morning sprang up from sleep, 1-228
The woman was old and ragged and gray, 18-6649
The woman's cause is man's: they rise or sink, 14-5131
The world is too much with us: late and soon, 19-6989
The Year had all the Days in charge, 11-4033
The year's at the spring, 2-607
Then saw they how there hove a dusky barge, 19-6953
Then the little Hiawatha, 17-6378
There are gains for all our losses, 18-6650
There dwelt a miller hale and bold, 19-6870
There is a flower, a little flower, 18-6468
There is a tide in the affairs of man, 11-3933
There is a window in a quiet room, 15-5422
There is in the wide, lone sea, 5-1781
There! little girl, don't cry, 18-6755
There lived a sage in days of yore, 3-1139
There once was a bird that lived up in a tree, 9-3272
There sat one day in quiet, 5-1780
There was a fern on the mountain, and moss on the moor, 12-4273
There was a frog lived in a well, 18-6652
There was a jolly miller, 17-6384
There was a king in olden days, 6-2033
There was a king met a king, 7-2368
There was a little boy and a little girl, 7-2530
There was a little boy went into a field, 5-1890
There was a little girl, who had a little curl, 2-492
There was a little Rabbit sprig, 4-1386
There was a man and he had nought, 6-2039
There was a man, and he went mad, 4-1385
There was a man of Thessaly, 9-3008
There was a monkey climb'd up a tree, 3-1011
There was a sound of revelry by night, 8-2766
There was a time when meadow, grove and stream, 7-2633
There was a tumult in the city, 15-5648
There was a young lady of Bute, 3-1012
There was a young lady of Portugal, 2-490
There was a young lady of Russia, 2-491
There was a youth, a well-beloved youth, 11-4030
There was an old lady all dressed in silk, 3-1144
There was an old lady of Chertsey, 2-490
There was an old man at a casement, 2-491
There was an old man in a boat, 2-491
There was an old man in a pew, 2-490
There was an old man in a tree, 2-492
There was an old man of Aösta, 2-490
There was an old man of Apulia, 2-490
There was an old man of Coblenz, 3-1012
There was an old man of Corfu, 3-1012
There was an old man of Kilkenny, 3-1012
There was an old man of Nepaul, 2-491
There was an old man on some rocks, 2-491
There was an old man who said, "Hush!" 3-1012
There was an old man with a flute, 2-491
There was an old man with a poker, 2-490
There was an old person of Basing, 2-490
There was an old person of Chili, 2-491
There was an old person of Dover, 2-491
There was an old person of Dutton, 3-1012
There was an old person of Mold, 3-1012
There was an old person of Rhodes, 2-490
There was an old person of Sparta, 3-1012
There was an old woman, 2-740
There was an old woman, and what do you think? 16-5713
There was an old woman, as I've heard tell, 3-1146
There was an old woman called Nothing-at-all, 15-5652
There was an old woman who had three sons, 18-6800
There was an old woman who lived in a shoe, 3-1145
There was an owl lived in an oak, 15-5652
There were once two cats of Kilkenny, 13-4602
There were three sisters in a hall, 13-4601
There were two black-birds, 2-740
There's a breathless hush in the Close tonight, 8-3005
There's a dear little home in Good-Children Street, 9-3340
There's a Good Time Coming, by Charles Mackay, 7-2637
There's a man that I know, and he lives near you, 8-2765
There's a neat little clock, 16-5712
There's a ship lies off Dunvegan, 10-3480
There's a song in the air! 14-4955
There's no dew left on the daisies and clover, 14-4956
There's Room at the Top, by Mrs. Lilla T Elder, 16-5923
There's something in a flying horse, 12-4347
They are slaves who fear to speak, 16-5867
They are such tiny feet, 14-5240
They glide upon their endless way, 2-609
They say that God lives very high! 2-486
They that wash on Friday, wash in need, 16-5712
They told me, Heraclitus, they told me you were dead, 8-3004

POETRY INDEX

They will come from the hill and the valley,
15-5650
They win who never near the goal, 8-2764
Things That Never Die, by Sarah Doudney,
5-1887
Thirty days hath September, 2-739
Thirty white horses upon a red hill, 7-2368
This England never did, nor never shall, 3-835
This I beheld, or dreamed it in a dream, 2-488
This is the house that Jack built, 15-5651
This is the summit, wild and lone, 9-3271
This little pig went to market, 2-740
This royal throne of kings, this scepter'd isle,
11-3931
This was the noblest Roman of them all, 11-3931
This winter's weather it waxeth cold, 19-6992
Thomas, Edith M.
Talking in Their Sleep, 9-3111
Thompson, Francis
Hound of Heaven, 8-2901
Thomson, James
Give a Man a Horse He Can Ride, 2-489
quotations from, 6-2028
Rule, Britannia! 2-486
Thorpe, Rose Hartwick
Curfew Bell, 7-2363
Thou blossom bright with autumn dew, 19-6873
Thou goest; to what distant place, 16-5924
Though all we made depart, 15-5422
Though I am king I have no throne, 12-4476
Three Best Things, by Henry Van Dyke, 12-4272
Three Fishers, by Charles Kingsley, 15-5522
Three fishers went sailing away to the West,
15-5522
Three Kings, by H. W. Longfellow, 18-6465
Three kings came riding from far away, 18-6465
Three little girls were sitting on a rail, 19-6995
Three Old Ladies, by Mary Mapes Dodge,
3-1144
Three tabbies took out their cats to tea, 19-6995
Three wise men of Gotham, 16-5713
Three Years She Grew, by William Wordsworth,
18-6467
Threshold, 19-6989
Thy Way, Not Mine, O Lord, by Horatius Bonar,
13-4599
Ticknor, Francis Orrery
Little Giffen, 6-2242
Tide River, by Charles Kingsley, 5-1646
Tiger, by William Blake, 3-1139
Tiger, tiger, burning bright, 3-1139
Tilton, Theodore
All Things shall Pass Away, 1-323
Time, by Sir Walter Scott, 11-4020
Time's glory is to calm contending kings,
2-723
'Tis a lesson you should heed, 14-4956
'Tis all the way to Toe-town, 11-4111
'Tis the last rose of summer, 16-5922
'Tis the voice of a sluggard; I heard him com-
plain, 2-606
To a Butterfly, by William Wordsworth,
6-2152
To a Butterfly (another poem), by William
Wordsworth, 16-6624
To a Mountain Daisy, by Robert Burns,
14-5128
To a Mouse, by Robert Burns, 3-1008
To a Skylark, by P. B. Shelley, 16-6021
To a Skylark, by William Wordsworth,
11-4034
To a Waterfowl, by William Cullen Bryant,
17-6379
To Alfred Laliberté, by Isabel McCaw, 10-3483
To Althea from Prison, by Richard Lovelace,
16-5708
To Anthea, by Robert Herrick, 19-6991
To Autumn, by John Keats, 1-325
To be, or not to be: that is the question,
11-3927
To Celia, by Ben Jonson, 2-489
To dream-bird and heart-beat, 4-1381
To gild refined gold, to paint the lily, 11-3933
To Lucasta, on Going to the Wars, by Richard
Lovelace, 17-6276
To market, to market to buy a fat pig, 2-740
To My Mother's Memory, by Sir Wm. Watson,
9-3271
To my Sister, by Heinrich Heine, 19-6987
To the Cuckoo, by Wm. Wordsworth, 6-2033
To the Fringed Gentian, by W. C. Bryant,
19-6873
To the Lord General Cromwell, by John Milton,
12-4349

To the Moon, by P. B. Shelley, 2-489
To the Nightingale, by John Milton, 14-5238
To the River Charles, by H. W. Longfellow,
7-2638
To the Skylark, by William Wordsworth,
7-2529
To Thomas Moore, by Lord Byron, 19-6989
To Tusitala in Valima, by Edmund Gosse,
10-3737
Toll for the brave, 1-324
Tom Bowling, by Charles Dibdin, 5-1781
Tom he was the piper's son, 10-3645
Tom, Tom the Piper's Son, 10-3645
Tomorrow, and tomorrow, and tomorrow,
3-985
Toplady, Augustus Montague
Rock of Ages, 7-2364
Torch of Life, by Sir Henry Newbolt, 8-3005
Tragic Story, translated by W. M. Thackeray,
3-1139
Travel, by R. L. Stevenson, 3-1136
Traveler, what lies over the hill? 9-3270
Traveler's Return, by Robert Southey, 7-2527
Trees, by Joyce Kilmer, 12-4271
Trench, Herbert
I Heard a Soldier, 3-1139
Trip upon trendies, and dance upon dishes,
3-849
Trotter, Bernard Freeman
For Justice, 15-5422
Trowbridge, John Townsend
Darius Green and his Flying-machine,
18-6795
True Greatness, by Lady Elizabeth Carew,
5-1887
True Growth, by Ben Jonson, 3-847
Truth, crushed to earth shall rise again, 14-5131
Try Again, by W. E. Hickson, 14-4956
Turn, turn thy hasty foot aside, 3-847
Turner, Charles Tennyson
Little Sophie by the Seaside, 16-5923
Turner, Mrs. Elizabeth
Greedy Boy, 3-844
How to Write a Letter, 14-4955
'Twas on a summer morning, 6-2244
'Twas the night before Christmas, when all
through the house, 4-1517
'Twas the soul of Judas Iscariot, 14-5239
Twenty-third Psalm, metrical version, by
Joseph Addison, 2-486
Twilight Song, by Miss Lawrence Alma-Tadema,
12-4274
Twinkle, twinkle, little star, 3-1138
Twixt a hill and hollow, hollow pass, 7-2366
Two Armies, by O. W. Holmes, 6-2245
Two frogs fell into a milk-pail deep, 8-2907
Two little boys named Willie, 5-1888
Two little dogs sat by the fire, 7-2639
Two little girls are better than one, 3-1144
Two little kittens, one stormy night, 13-4746
Two Men, by C. N. Gregory, 11-4033
Two sticks and an apple, 2-741
Tying her bonnet under her chin, 4-1518

U

Uhland, Ludwig
Castle by the Sea, 19-6988
Ulysses, by Alfred Tennyson, 18-6798
Under a spreading chestnut tree, 1-227
Under a toadstool crept a wee elf, 12-4351
Under My Window, by Thomas Westwood,
5-1646
Under the Greenwood Tree, by William Shake-
speare, 6-2152
Under the wide and starry sky, 8-2869
Under the window is my garden, 19-6994
Underneath this sable hearse, 13-4599
Unkindness, by George Herbert, 17-6379
Unnamed Lake, by F. G. Scott, 15-5419
Unseen playmate, by Robert Louis Stevenson,
2-608
Untermeyer, Louis
My House, 6-2242
Until this grain of sand, 17-6254
Up from the south at break of day, 19-6868
Up-hill, by Christina Rossetti, 12-4472
Up hill and down dale, 3-1143
Up the airy mountain, 2-485
Up with me! up with me into the clouds!
11-4034
Upon yon nearest rock-top, 6-2247
Useful Plough, (English song), 4-1384

POETRY INDEX

V

- Valediction, by Mrs. E. B. Browning, 4-1380
Van Dyke, Henry
 Four Things, 8-2765
 God Sends Love to You, 14-4955
 Henry Hudson's Last Voyage, 11-4109
 Life, 12-4272
 Love, 12-4272
 Rencontre, 11-4114
 Three Best Things, 12-4272
 Work, 12-4272
Van Tollens, Hendrik
 Wein Neerlansch, 17-6252
 Vart land, by Runeberg, 17-6252
Vaughan, Henry
 Peace, 12-4350
 Vision, 10-3644
 Venice, by Lord Byron, 14-5131
 Village Blacksmith, by H. W. Longfellow, 1-227
 Violet, by Jane Taylor, 2-489
Virgil
 Aeneid: quotations from, 6-1986-89
 Vision, by Henry Vaughan, 10-3644
 Vision of Belshazzar, by Lord Byron, 7-2529
 Vision of Sir Launfal: quotation, by J. R. Lowell, 4-1515
 Vision of the Future, from Locksley Hall, by Lord Tennyson, 9-3276
 Visit from St. Nicholas, by C. C. Moore, 4-1517
 Voice of the Grass, by Sarah Boyle, 6-2153

W

- Wae's me for Prince Charlie, 15-5643
 Waiting, by John Burroughs, 6-2244
 Waken, Christian children! 17-6108
 Walk in Spring, by M. A. Stodart, 9-3111
 Walker of the Snow, by C. D. Shanley, 15-5420
Waller, Edmund
 Rose, 19-6874
 Walrus and the Carpenter, by Lewis Carroll, 6-2037
 Warders, by G. F. Scott, 9-3271
 Warren's Address to the American Soldiers, by John Pierpont, 19-6990
 Was it the wind I heard starting the leaves athrill, 10-3484
 Wash me and comb me, 3-1143
 Wassail! Wassail all over the town, 13-4747
Watson, Sir William
 To My Mother's Memory, 9-3271
Watts, Isaac
 Cradle Song, 14-5241
 Little Busy Bee, 2-484
 O God, Our Help in Ages Past, 5-1781
 Sluggard, 2-606
Waugh, Edwin
 Christmas Morning, 17-6107
 Way down, upon de Swanee Ribber, 4-1380
 We are all in the dumps, 17-6384
 We are come back from Babylon, 8-3005
 We are much honored by your choice, 10-3738
 We are the Dreamers of Dreams, by Arthur O'Shaughnessy, 16-5709
 We are the music-makers, 16-5709
 We are the Roadside Flowers, by Bliss Carman, 17-6282
 We have no Dryads in our woods, 15-5417
 We, in the ages lying, 12-4234
 We just shake hands at meeting, 17-6378
 We live in deeds, not years; in thoughts, not breaths, 3-1007
 We should fill the hours with the sweetest things, 8-2903
 We worship the spirit that walks unseen, 10-3481
 Weakest Thing, by E. B. Browning, 7-2637
 Wearin' o' the Green, 17-6256
Weatherly, Frederic Edward
 Discontented Apples, 5-1888
 Jealous Jack Frost, 17-6108
 Miss Poppy, 6-2244
 What Bobbie Would Like, 12-4270
 What Might Have Been, 5-1888
 Wee, modest, crimson-tipped flower, 14-5128
 Wee, sleekit, cow'rin', tim'rous beastie, 3-1008
 Wee Willie Winkie, by William Miller, 2-736
 Weighing the Baby, by Ethel Lynn, 5-1780
 Welcome to Spring, by Pierre de Ronsard, 7-2364
 We'll ha'e nane but Highland Bonnets here, by Alexander MacLagan, 17-6254
 Were I a Birdie, Too (German folksong), 7-2366
Wesley, Charles
 Gentle Jesus, Meek and Mild, 9-3270
 Jesus, Lover of my Soul, 16-5867
 West wind, blow from your prairie nest, 15-5419
Westwood, Thomas
 Mine Host of the "Golden Apple," 7-2364
 Under My Window, 5-1646
 What are little boys made of, 16-5713; (with music) 6-2248
 What Bobbie Would Like, by F. E. Weatherly, 12-4270
 What Can a Little Chap Do? by John Oxenham, 6-2036
 What Does It Matter? 11-4033
 What does little birdie say, 3-848
 What Everyone Knows, 2-738
 What graven words shall mark as mine? 6-2243
 What have I done for you, England, my England? 7-2365
 What I Live For, by G. L. Banks, 9-3274
 What I shall leave thee none can tell, 19-6873
 What is it you ask me, darling? 2-738
 What is the blue on our flag, boys? 10-3482
 What is the meaning of the song, 11-4033
 What is the news of the day, 17-6384
 What is the rhyme for porringer? 17-6110
 What is this life, if full of care, 9-3111
 What Might Have Been, by F. E. Weatherly, 5-1888
 What of the bow? 9-3107
 What passion cannot music raise and quell? 4-1358
 What the Sonnet is, by Eugene Lee-Hamilton, 12-4475
 What the Stars Have Seen, by O. W. Holmes, 5-1888
 What was he doing, the great god Pan, 5-1779
 When a deed is done for Freedom, 7-2525
 When all the world is young, lad, 8-2906
 When Britain first, at Heaven's command, 2-486
 When cats run home and light is come, 6-2153
 When children are playing alone on the green, 2-608
 When Eve had led her lord away, 5-1888
 When Freedom, from her mountain height, 6-2034
 When God at first made Man, 1-323
 When God, who is forever free, 17-6253
 When good King Arthur ruled this land, 8-2771
 When I consider how my light is spent, 17-6378
 When I contemplate all alone, 12-4346
 When I Have Fears, by John Keats, 3-1141
 When I Was a Bachelor, 5-1889
 When I was a beggarly boy, 18-6468
 When I was a farmer, a farmer's boy, 16-6025
 When icicles hang by the wall, 6-2152
 When I'm grown up, 14-5236
 When I'm put to bed today, 2-611
 When little Fred was called to bed, 7-2530
 When little Sammy Soapsuds, 2-741
 When Love arose in heart and deed, 6-2244
 When Love with unconfined wings, 16-5708
 When Mummy's Away, 14-5236
 When on my day of life the night is falling, 7-2637
 When Summer Comes, by J. E. Logan, 15-5418
 When the British warrior queen, 1-322-23
 When the Call is Sounded, by Lurana Sheldon, 15-5650
 When the dumb Hour, clothed in black, 4-1516
 When the humid shadows hover, 11-4034
 When the Norn Mother saw the Whirlwind Hour, 5-1645
 When the snow is on the ground, 13-4745
 When the voices of children are heard on the green, 3-847
 When Thou com'st with reddening dawn, 17-6255
 When thou dost eat from off this plate, 12-4473
 When 'tis pouring hard with rain, 12-4480
 When You Are Old, by William Ernest Henley, 16-5866
 When you see that flag of beauty, 15-5650
 Where are you going, Great-Heart, 8-3006
 Where are you going to, my pretty maid? 2-741
 Where did you come from, baby dear? 2-486
 Where have you been all day, 18-6801
 Where is the true man's fatherland? 3-846
 Where the bee sucks, there lurk I, 8-2689
 Where the pools are bright and deep, 2-607

POETRY INDEX

Whereof the man, that with me trod, 12-4347
 Which I wish to remark, 4-1381
 Which is the weakest thing of all, 7-2637
 While We May, 19-6872
 White Hart, by A. P. Graves, 19-6984
 Whither, by Wilhelm Müller, 19-6987
 Whither, midst falling dew, 17-6379
Whiting, W.
 Eternal Father, strong to Save, 19-6871
Whitman, Walt
 O Captain! My Captain! 10-3736
Whittier, John Greenleaf
 At Last, 7-2637
 Barefoot Boy, 4-1517
 Maud Muller, 16-5707
 My Playmate, 18-6466
 Red River Voyageur, 15-5420
 Who can this Somebody be? 2-482
 Who comes here? 2-739
 Who Dies if England Live! by Kipling, 15-5422
 Who fed me from her gentle breast, 2-736
 Who Is Sylvia? by William Shakespeare, 18-6798
 (with music) 11-3934
 Who Killed Cock Robin? 10-3742
 Who rides there so late through the night—dark
 and drear, 19-6988
 Who stuffed that white owl? 7-2640
 Who would true valour see, 9-3338
 Why do you laugh, little brook, little brook,
 6-2153
 Why hurry, little river, 10-3481
 Why I Abandoned You, by Tom Kettle, 9-3110
 Why It Was Cold in May, by H. R. Eliot,
 11-4033
 "Why sitt'st thou by that ruined hall," 11-4030
 Why so pale and wan, fond lover? 17-6376
 Why weep ye by the tide, ladie? 3-847
Widmer, Leonard
 National Hymn of Switzerland, 17-6255
 Wien Neerlansch, by Hendrik Van Tollens,
 17-6252
Wilcox, Mrs. Ella Wheeler
 Babyland, 16-5923
 I Am, 4-1514
 My Ships, 5-1778
 One of Us Two, 18-6651
 You Never Can Tell, 6-2150
 Wishing, 7-2528
 Wild Rose, by J. W. Goethe, 19-6987
 Wild was the night, yet a wilder night, 19-6868
 "Will you walk into my parlour?" 12-4269
 William the Conqueror, by Charles Mackay,
 8-2903
 Willie's Lodger, by M. M. Dodge, 5-1888
 Willy boy, Willy boy, where are you going?
 13-4745
 Wind and the Moon, by George Macdonald,
 16-5711
 Wind in a Frolic, by William Howitt, 1-228
 Winter, by W. S. Landor, 17-6378
 Winter Song, by William Shakespeare, 6-2152
 Wish, by Samuel Rogers, 3-846
 Wishing, by William Allingham, 3-1007
 Wishing, by E. W. Wilcox, 7-2528
 With a Copy of Herrick, by Edmund Gosse,
 12-4348
 With deep affection and recollection, 14-5238
 With fingers weary and worn, 16-5710
 With proud thanksgiving, a mother for her
 children, 12-4272
 With thunder shout the air is rent, 17-6254
 With weary steps I loiter on, 12-4345
Wither, George
 Lover's Resolution, 17-6376

Without haste! without rest! 4-1381
Wolfe, Charles
 Burial of Sir John Moore, 2-607
 Wonderful One-Hoss Shay, by O. W. Holmes,
 9-3269
 "Woodman, spare that tree," 1-326
Wordsworth, William
 Composed Upon Westminster Bridge, 12-4350
 Daffodils, 1-102
 Fidelity, 11-4115
 Forth sprang the impassioned Queen her Lord
 to clasp, 8-2820
 I travelled among unknown men, 18-6467
 Intimations of Immortality, 7-2633
 Kitten and the Falling Leaves, 14-4956
 London, 1802, 12-4349
 Lucy, 2-606
 Lucy Gray, 3-1140
 March, 4-1384
 Pet Lamb, 6-2031
 Peter Bell, selection from, 12-4347
 quotations from, 7-2357-58
 Rainbow, 2-607
 Reaper, 14-4954
 She Was a Phantom of Delight, 8-2903
 The world is too much with us, 19-6989
 Three years she grew, 18-6467
 To a Butterfly, 6-2152
 To a Butterfly (another poem), 16-6024
 To a Skylark, 11-4034
 To the Cuckoo, 6-2033
 To the Skylark, 7-2529
 Work, by E. B. Brownlow, 10-3480
 Work, by Henry Van Dyke, 12-4272
 Work! use all thy will, give all thy might,
 10-3480
 World, by W. B. Rands, 2-738
 Worm, by Thomas Gisborne, 3-847
 Worn and footsore was the Prophet, 6-2245
Wotton, Sir Henry
 Character of a Happy Life, 13-4599
 Wreck of the Hesperus, by H. W. Longfellow,
 1-103
 Wynken, Blynken, and Nod one night, 1-98

Y

Yankee Doodle, 17-6250
 Ye Mariners of England, by Thomas Campbell,
 2-609
 Ye sons of Freedom, wake to glory! 12-4472
 Yestreen, when to the trembling string, 6-2136
 Yet once more, O ye laurels, and once more,
 4-1236-38
 You are going out to tea today, 16-5868
 "You are old, Father William," the young man
 cried, 2-484
 You know, we French stormed Ratisbon, 12-4350
 You Never Can Tell, by E. W. Wilcox, 6-2150
 You see, merry Phillis, that dear little maid,
 14-4957
 You shall have an apple, 7-2530
 You spotted snakes, with double tongue, 6-2153
 You think I am dead, 9-3111
 Young and Old, by Charles Kingsley, 8-2906
 Young lambs to sell, 2-739
 Young Mouse, by Jeffreys Taylor, 3-844
 Young Russia, hail, victorious, 17-6253
 Young Sophie leads a life without alloy,
 16-5923

Facsimiles of the Signatures to the Declaration of Independence July 4, 1776
from Binns' Celebrated Engraving.

John Penn John Hancock John Hart
Wm Lloyd Wm Hooper Sam^d Adams
Geo Read Wm Hooper Geo Lymer
Step. Hopkins Tho Nelson
Charles Carroll Harrold M^d Ellbridge Gerry
Tho M^d Keane Roger Sherman Sam^d Huntington
Wm Whipple Thomas Lynch Jun^r
Geo TAYLOR Josiah Bartlett Benjⁿ Franklin
Wm Williams Rich Stockton John Morton
Oliver Wolcott Jno Witherspoon Geo. Ross
Tho Stone Samuel Chase Rob^t Treat Paine
George Wythe Matthew Thornton
Fran^c Lewis Th^o Jefferson Henry Harrison
Lewis Morris Abra^m Clark Chas^s Livingston
Arthur Middleton Fra^s Hopkinson
Geo Walton Carter Braxton James Wilson
Richard Henry Lee Th^o M^d Veyward Jun^r
Benjamin Rush John Adams Rob^t Morris
Symon Hall Joseph Hewes Button Gwinnett
Francis Lightfoot Lee
William Ellery Edward Rutledge Jas^s Smith

"Department of State 19th Sept 1891 I certify that this is a CORRECT copy of the original Declaration of Independence deposited at this Department and that I have compared all the signatures with those of the original and have found them EXACT IMITATIONS." John Quincy Adams

THE SIGNERS OF THE DECLARATION OF INDEPENDENCE

As told in the introductory matter, the Declaration of Independence was not signed on July 4, 1776, though it was adopted on that date. The official copy was signed by the members present, August 2, 1776, though some absentees signed later. The official copy bears the signatures of the delegates from New York who did not vote for the Declaration, as their state did not instruct in favor of independence until July 9. On the other hand, Robert Livingston, one of the committee which drafted the Declaration, was called to duties in New York and never signed. Thomas McKean, of Delaware, was present on July 4, but absent later and was permitted to sign in 1781.

Some of the men who signed the Declaration were later prominent under the Confederation and the Constitution. Others were not heard from afterward. Some were old and died before the Constitution was adopted. We see the names of John Adams and Thomas Jefferson, later presidents of the United States. Benjamin Franklin was useful before and after the Declaration. John Hancock was prominent in Massachusetts, afterward as well as before. Samuel Adams, the great agitator, signed the Declaration, but was inclined to oppose the Constitution, though his opposition was not active. Benjamin Harrison was the father of President William Henry Harrison, who was in turn the grandfather of President Benjamin Harrison. Charles Carroll is said to have added the descriptive phrase "of Carrollton" to his name in order that there might be no confusion if the signers should be proscribed by Great Britain. James Wilson led the fight for the adoption of the Constitution in Pennsylvania. Richard Henry Lee did his utmost to prevent Virginia from adopting the Constitution, but later became United States Senator and a strong supporter of the new government. Robert Morris was the financier of the Revolution, and also held office under the Confederation.

TWO IMPORTANT HISTORICAL DOCUMENTS

IN the following pages we are giving you the text of the Declaration of Independence and the Constitution of the United States. Both are important documents in the history of the United States. We have talked about them in different volumes of our book, and here we give you the opportunity to see for yourselves what they say. A real historian always goes back to "original sources" in writing his books, and here you may see two of the documents such as historians use. Perhaps you will find that you had wrong impressions about them. The editor's comments are in different type.

THE DECLARATION OF INDEPENDENCE

IN Volume Four you will find the events leading up to the Declaration of Independence told at length. As you have seen, the adoption of the Declaration was not a sudden act. From the date of the Stamp Act in 1765 the colonists had been actively resisting King and Parliament. They had met in two Continental Congresses in defiance of British rule; blood had been shed at Lexington and Concord, Moore's Creek and Bunker Hill. Ticonderoga and Montreal had been captured, Quebec had been attacked, and Boston had been besieged.

In spite of all these events the colonists had been slow to move for absolute independence, but during these ten years of dispute the belief that separation was necessary had grown stronger. One by one states had declared for independence. On June 7, 1776, Richard Henry Lee, of Virginia, offered a resolution in Congress "that these United Colonies are, and of right ought to be free and independent states." Action was postponed for three weeks in order that the delegates might hear from home. Voting in Congress was by states, and the vote was cast as a majority of the delegates present directed. If the delegates were evenly divided, the state lost its vote. On July 2, 1776, the resolution was taken up in the Committee of the Whole. Nine states voted to adopt the resolution. New York was excused, as the delegates had no instructions; Delaware was divided; and only South Carolina and Pennsylvania were opposed. Strictly speaking, therefore, July 2, 1776, is the day upon which Congress voted for independence. The next day Congress met in regular session, and the three states last named voted formally with the nine in favor of the resolution declaring the United States independent.

Meanwhile, on June 11, a committee consisting of Thomas Jefferson, John Adams, Benjamin Franklin, Roger Sherman and Robert Livingston had been appointed to draw up a declaration of the reasons for separation. This committee reported on June 28, and the document was discussed in the Committee of the Whole before independence had been formally voted. The document itself is the work of Jefferson, though a few corrections were made by other members of the committee of five, and a few amendments by Congress. On July 4, 1776, the corrected and amended Declaration was adopted by vote of the twelve states, but it was signed on that date only by John Hancock, the president of Congress.

On July 9 New York instructed for independence, and on July 19 Congress voted that the document be engrossed on parchment and signed by every member. This copy was made, and on August 2 it was signed by all the members present, including the delegates from New York, who had not voted for independence on July 2, 3 or 4. As you are told under the copy of the signatures, one man did not sign at all, and another signed in 1781.

So you see that independence was declared, not on July 4, but on July 2 and July 3. The formal Declaration was adopted on July 4, but it was not

THE DECLARATION OF INDEPENDENCE

signed on that day, but on August 2 and later. The parchment copy of the Declaration is kept in the Department of State. Facsimile copies were later made for the signers and their families, but the ink has now faded to such an extent that many of the signatures can hardly be read. In the text which we give we have followed the spelling and the punctuation of the official engrossed copy, which differs somewhat in these particulars from the original copy adopted by Congress.

THE DECLARATION OF INDEPENDENCE

In Congress, July 4, 1776

THE UNANIMOUS DECLARATION OF THE THIRTEEN UNITED STATES OF AMERICA

WHEN in the Course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the Powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experience hath shown, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security.—Such has been the patient sufferance of these Colonies; and such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute Tyranny over these States. To provide this, let Facts be submitted to a candid world.

He has refused his Assent to Laws, the most wholesome and necessary for the public good.

He has forbidden his Governors to pass Laws of immediate and pressing importance, unless suspended in their operation till his Assent should be obtained; and when so suspended, he has utterly neglected to attend to them.

He has refused to pass other Laws for the accommodation of large districts of people, unless those people would relinquish the right of Representation in the Legislature, a right inestimable to them and formidable to tyrants only.

THE DECLARATION OF INDEPENDENCE

He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their Public Records, for the sole purpose of fatiguing them into compliance with his measures.

He has dissolved Representative Houses repeatedly, for opposing with manly firmness his invasions on the rights of the people.

He has refused for a long time, after such dissolutions, to cause others to be elected; whereby the Legislative Powers, incapable of Annihilation, have returned to the People at large for their exercise; the State remaining in the mean time exposed to all the dangers of invasion from without, and convulsions within.

He has endeavoured to prevent the population of these States; for that purpose obstructing the Laws for Naturalization of Foreigners; refusing to pass others to encourage their migration hither, and raising the conditions of new Appropriations of Lands.

He has obstructed the Administration of Justice, by refusing his Assent to Laws for establishing Judiciary Powers.

He has made Judges dependent on his Will alone, for the tenure of their offices, and the amount and payment of their salaries.

He has erected a multitude of New Offices, and sent hither swarms of Officers to harass our People, and eat out their substance.

He has kept among us, in times of peace, Standing Armies without the Consent of our legislature.

He has affected to render the Military independent of and superior to the Civil Power.

He has combined with others to subject us to a jurisdiction foreign to our constitution, and unacknowledged by our laws; giving his Assent to their acts of pretended legislation:

For quartering large bodies of armed troops among us:

For protecting them, by a mock Trial, from Punishment for any Murders which they should commit on the Inhabitants of these States:

For cutting off of Trade with all parts of the world:

For imposing taxes on us without our Consent:

For depriving us in many cases, of the benefits of Trial by Jury:

For transporting us beyond Seas to be tried for pretended offenses:

For abolishing the free System of English Laws in a neighbouring Province, establishing therein an Arbitrary government, and enlarging its Boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these Colonies:

For taking away our Charters, abolishing our most valuable Laws, and altering fundamentally the Forms of our Governments:

For suspending our own Legislature, and declaring themselves invested with Power to legislate for us in all cases whatsoever.

He has abdicated Government here, by declaring us out of his Protection and waging War against us.

He has plundered our seas, ravaged our Coasts, burnt our towns, and destroyed the lives of our people.

He is at this time transporting large armies of foreign mercenaries to complete the works of death, desolation and tyranny, already begun with circum-

THE DECLARATION OF INDEPENDENCE

stances of Cruelty & perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the Head of a civilized nation.

He has constrained our fellow Citizens taken Captive on the high Seas to bear Arms against their Country, to become the executioners of their friends and Brethren, or to fall themselves by their Hands.

He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers, the merciless Indian Savages, whose known rule of warfare, is an undistinguished destruction of all ages, sexes and conditions.

In every stage of these Oppressions We have Petitioned for Redress in the most humble terms: Our repeated Petitions have been answered only by repeated injury. A Prince, whose character is thus marked by every act which may define a Tyrant, is unfit to be the ruler of a free People.

Nor have We been wanting in attention to our British brethren. We have warned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them by the ties of our common kindred to disavow these usurpations, which, would inevitably interrupt our connections and correspondence. They too have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity, which denounces our Separation, and hold them, as we hold the rest of mankind, Enemies in War, in Peace Friends.

We, therefore, the Representatives of the united States of America, in General Congress, Assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the Name, and by Authority of the good People of these Colonies, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are Absolved from all Allegiance to the British Crown, and that all political connection between them and the State of Great Britain, is and ought to be totally dissolved; and that as Free and Independent States, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which Independent States may of right do. And for the support of this Declaration, with a firm reliance on the Protection of Divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor.

JOHN HANCOCK.

*New Hampshire **

JOSIAH BARTLETT
WM. WHIPPLE
MATTHEW THORNTON

Massachusetts Bay

SAML. ADAMS
JOHN ADAMS
ROBT. TREAT PAINE
ELBRIDGE GERRY

Rhode Island

STEP. HOPKINS
WILLIAM ELLERY

Connecticut

ROGER SHERMAN
SAM'EL HUNTINGTON
WM. WILLIAMS
OLIVER WOLCOTT

* This arrangement of the names is made for convenience. The states are not mentioned in the original.

THE DECLARATION OF INDEPENDENCE

New York

WM. FLOYD
PHIL. LIVINGSTON
FRANS. LEWIS
LEWIS MORRIS

New Jersey

RICHD. STOCKTON
JNO. WITHERSPOON
FRAS. HOPKINSON
JOHN HART
ABRA. CLARK

Pennsylvania

ROBT. MORRIS
BENJAMIN RUSH
BENJA. FRANKLIN
JOHN MORTON
GEO. CLYMER
JAS. SMITH
GEO. TAYLOR
JAMES WILSON
GEO. ROSS

Delaware

CÆSAR RODNEY
GEO. READ
THO. M'KEAN

Maryland

SAMUEL CHASE
WM. PACA
THOS. STONE
CHARLES CARROLL of Carrollton

Virginia

GEORGE WYTHE
RICHARD HENRY LEE
TH. JEFFERSON
BENJA. HARRISON
THOS. NELSON, jr.
FRANCIS LIGHTFOOT LEE
CARTER BRAXTON

North Carolina

WM. HOOPER
JOSEPH HEWES
JOHN PENN

South Carolina

EDWARD RUTLEDGE
THOS. HEYWARD, Junr.
THOMAS LYNCH, Junr.
ARTHUR MIDDLETON

Georgia

BUTTON GWINNETT
LYMAN HALL
GEO. WALTON

THE CONSTITUTION

THE Second Continental Congress, which planned resistance to Great Britain, appointed George Washington commander-in-chief, and adopted the Declaration of Independence, was a revolutionary body, chosen in defiance of Great Britain. It was composed of delegates appointed by the separate states, who sat together in one house. We have told you that each state had one vote, which was cast as a majority of the delegates present decided. There was no central government, and Congress had no power over the separate states.

After the Declaration of Independence it was determined to frame a written agreement between the states, a sort of constitution. A committee was appointed and reported a plan. This was known as the Articles of Confederation, and with some changes was adopted by Congress in November, 1777, and sent to the separate states for their approval. All the states except Maryland ratified the articles within eighteen months. This state had no claim to any lands beyond the Alleghenies and refused to ratify until the other states promised to surrender their claims to western lands to Congress. This was finally done and Maryland ratified in 1781, and then the Articles of Confederation went into effect practically at the end of the Revolution. On page 1696 we tell you something of the Articles.

As you can see, such a government can hardly be called a government at all. It could not get the money to meet its obligations and had the respect neither of the people of the United States nor of other nations. States often failed to send delegates to Congress. Sometimes as few as twenty, representing ten states or fewer, were present. There was much disorder in the country and many disputes between states. Some of them threatened to go to war with other states. Thoughtful men feared that the independence won with such difficulty would be lost if the states did not form some closer union.

The constant disputes between the states led Virginia to ask them to send delegates to a meeting in Annapolis, Maryland, in 1786 to discuss uniform laws about trade. Only five states were represented, and no action was taken, but the delegates discussed the misfortunes of the country and all agreed that the Articles must be amended. So they adopted a resolution, drawn up by Alexander Hamilton, asking that the states send representatives to a convention to meet in Philadelphia in May, 1787. Congress approved the idea, and all the states except Rhode Island finally elected delegates, though New Hampshire was not represented until many important decisions had already been made.

The Convention had been called to meet May 14, 1787, but only a few delegates were present, and not until May 25 was the Convention called to order in Independence Hall. George Washington was chosen president, and it was voted to hold the meeting behind closed doors. Fortunately several of the delegates, particularly Madison, kept full notes of the proceedings which were published long afterward, and so we know almost all that happened during those four months.

Fifty-five delegates from twelve states were present at some time or other during the Convention, though not all of them took an active part. On the whole it was an unusual body of men representing the wealth and intelligence of the states. Twenty-nine were college-trained, three were professors of law, and one was a college president. Thirty-one had studied law, twelve of them in Europe. Thirty-nine had been members of Congress, and eight had helped to frame their state constitutions. Several had been, or were at the time, governors of their states.

THE CONSTITUTION OF THE UNITED STATES

The oldest member was Benjamin Franklin, over eighty-one, but Jonathan Dayton of New Jersey was only twenty-seven, Charles Pinckney of South Carolina was twenty-nine, and Alexander Hamilton was thirty. James Madison, who was the most influential member of the Convention, was thirty-six, and Gouverneur Morris of Pennsylvania, who is responsible for the exact wording of many sections, was thirty-five. The average age was about forty.

At the beginning of the discussions the "Virginia Plan" was offered and received the support of the larger states. Representation in the lower house was to be according to population, and the lower house was to elect the upper, and both together would choose the president. Since Massachusetts, Pennsylvania, Virginia and North Carolina had much more than half the population, this plan would have given entire control to the larger states. The smaller states objected and offered the "New Jersey Plan," which strengthened the Articles of Confederation, but left undisturbed the equal vote of the states. To avoid breaking up the Convention the "Connecticut Compromise" was adopted after much debate. This gave equal representation in the Senate, but representation according to population in the House of Representatives.

Already some people were beginning to doubt the wisdom of slavery, but some of the Southern states said that it was necessary. So slavery was not abolished, and Congress was forbidden to interfere with the slave trade before 1808. Next came the question whether slaves should be counted when fixing representation. The South said yes; the North said no. After discussion it was decided that in levying direct taxes and fixing representations, a hundred slaves should count as sixty white persons. This is the three-fifths rule of which you have heard.

These are only a few of the compromises of the Constitution. Nearly every sentence, almost every word, was the occasion of discussion, and many decisions were later modified when new arguments were presented. When the majority had finally come to general agreement the whole was referred to a committee which smoothed out the rough places and arranged the sections. Their work was then discussed line by line by the Convention and referred to the Committee on Style, of which Gouverneur Morris was the leading member. The document was again revised by the Convention and engrossed upon parchment.

The delegates had worked all through the hot summer of 1787. Some became displeased because the Constitution seemed to provide for too strong a government, and went home. Forty-two remained till the end. Three of them, George Mason and Edmund Randolph of Virginia and Elbridge Gerry of Massachusetts, at the last felt that they could not sign the instrument. The remaining thirty-nine, representing every one of the twelve states sending delegates, signed the finished paper on September 17, 1789.

It was then sent to Congress, which sent it to the states. The Convention had voted that it should go into effect when ratified by nine states, but it was not at all certain that a sufficient number of states would accept the instrument, as some of the most prominent men in the country were opposed. However, Delaware began, December 7, 1787, and Pennsylvania followed on December 12, and New Jersey on December 18, 1787. With the new year Georgia ratified (January 2) and Connecticut (January 9). In these states there was little opposition, but in Massachusetts the result was doubtful. Finally (February 6) it was ratified by a narrow majority, with the recommendation that several amendments be added as soon as possible. Maryland followed (April 28), and South Carolina ratified (May 23), but also recommended amendments. New Hampshire held back until it saw what Massachusetts would do, but ratified on June 21, making the ninth state. Virginia discussed the matter for more than three weeks, but finally ratified on June 25, also recommending amendments.

Though more than a sufficient number of states had ratified, the position

THE CONSTITUTION OF THE UNITED STATES

of New York between New England and the other states made it especially important. Sentiment in the state was generally opposed to the Constitution. Hamilton, Madison and John Jay published in the newspapers a series of eighty-five essays advocating adoption. The book made from them is called *The Federalist* and even to-day is one of the best works upon the Constitution. In the Convention Hamilton fought hard, and did convert some opponents. The fact that ten states had ratified and that New York would be left out of the government if it failed to ratify also had its effect. So finally (July 26) the convention approved.

Two states only were left outside, North Carolina and Rhode Island. In the former state the convention refused to ratify, saying that the rights of the states and the people were not sufficiently guarded. Twenty-six amendments were suggested and the Convention adjourned. Rhode Island submitted the question of ratification to the people, who voted against it by a large majority. So these two states had no part in the first elections or in organizing the new government. North Carolina ratified in November, 1789, but Rhode Island did not ratify until May, 1790, and then by a majority of only two votes.

What Is the Constitution

The Confederation was simply an agreement between separate states which preserved all their independence. The Constitution is more than this, for the states surrendered some of their rights to the new general government. It is, in fact, a compromise between a purely federal government and a strong centralized government. Madison said that the new government was partly national and partly federal, and to this day there is no better definition.

Certain matters, such as peace and war, regulation of commerce, navigation laws, coinage, the post office and the like, belong to the nation, which has the power to levy and collect taxes. Others, such as the ordinary protection of life and property, education, charity, roads and bridges, belong to the state, which also reserves all other powers not given to the national government by the Constitution. Some questions may interest both state and nation, and at different times they have caused trouble.

As you read the Constitution you will see that Article I has to do with the election, powers and duties of Congress; Article II, with the election, powers and duties of the President and other executive officers; and Article III, with the judicial power. Articles IV, V and VI contain many miscellaneous provisions, including the methods of amendment, and Article VII states how the instrument shall go into effect.

What Are the Sources of the Constitution

There is no one source of the Constitution, and, in fact, there is little in it that is entirely new. Some of the delegates were students of government and could discuss every government the world had known up to that time, and were familiar with the writings of philosophers and statesmen. Then, too, they knew English history and were familiar with the struggle of the English people toward freedom. They had drawn up the Articles of Confederation, and many provisions in that instrument were transferred to the new document. There are some entirely new ideas, but not many. The chief source was the experience of the colonists in America. We sometimes forget that the history of several of the states is longer before 1787 than since. In every colony the people enjoyed more or less self-government, and they had drawn up state constitutions after the Declaration of Independence. Experience and knowledge gained from all these sources went into the making of the Constitution. The wording of the document owes more to Gouverneur Morris than to any other individual. He was the leading member of the committee which put the decisions into final form.

THE CONSTITUTION OF THE UNITED STATES

Probably not a single member of the Convention was entirely satisfied with the document when it was finally adopted. For example, Hamilton wished the general government to have much more power, and he would have had most of the high officials chosen for life or good behavior. Gouverneur Morris felt much the same way. On the other hand, many men doubted whether the rights of the states and the people had been sufficiently protected. Benjamin Franklin expressed the feeling of many when he said: "I confess there are several parts of the Constitution which I do not at present approve, but I am not sure that I shall never approve them. . . . I doubt too whether any other convention we can obtain may be able to make a better Constitution. . . . Thus I consent, sir, to this Constitution because I expect no better and because I am not sure that it is not the best."

Washington himself, in January, 1788, before Virginia had ratified the instrument said in a letter: "There are some things in the new form I will readily acknowledge, which never did and I am persuaded never will, obtain my cordial approbation, but I then did concede and now do most firmly believe that in the aggregate it is the best Constitution that can be obtained at this epoch and that this or a dissolution of the Union awaits our choice and are the only alternatives before us."

However, as the instrument was discussed during the months after the adjournment of the Convention, many who had been disposed to criticize began to realize the greatness of the document. Thus we find Washington writing somewhat later: "It appears to me little short of a miracle that the delegates from so many different States (which States you know are also different from each other in their manners, circumstances and prejudices) should unite in forming a system of national government so little liable to well-founded objections. Nor am I yet such an enthusiastic, partial or un-discriminating admirer of it as not to perceive it is tinctured with some real (though not radical) defects."

The Amendments to the Constitution

Feeling as they did about their work, it is not surprising that the members provided for amendments. In Article V two methods are suggested. Two-thirds of each House may pass an amendment and send it to the states, or if the legislatures of two-thirds of the states request it, Congress must call a convention to propose amendments. Amendments adopted in either way become a part of the Constitution if adopted by the legislatures or by special conventions in three-fourths of the states. All the amendments have been adopted by the first method.

Many amendments have been proposed, but only nineteen have been adopted. The first ten were adopted within less than three years after the new government began, and are really a part of the Constitution itself. The Eleventh was adopted in 1798, the Twelfth in 1804. Then for more than sixty years there was no amendment. Between 1865 and 1870 came the three Civil War amendments, then two in 1913, one in 1919 (though it did not go into effect until 1920), and the Nineteenth in 1920. Immediately after the amendments we tell something of the history of each.

What the Test of Time Has Shown

Though many of the makers of the Constitution were not enthusiastic over the result of their labors, it has stood the test of time, and that is the hardest test. Though we speak of the United States as a new country, our government is one of the oldest, if not the oldest, in existence, for the government of Great Britain has been so much changed in the last hundred years that it is hardly the same, and the present governments of all the other European states are younger than ours. It is certainly the oldest written Constitution in the world.

THE CONSTITUTION OF THE UNITED STATES

When the Constitution was adopted, republics were few in number and small in area and population. Prophecies of failure were freely made, for Europe could not understand how a country could get along without a king. Now monarchy is becoming the unusual form of government. Many of the republics established later took ideas from the Constitution, though none adopted it without change. It was also studied in drawing up forms of government for the self-governing dominions under the British Crown, though of course there are many differences. When the Union of South Africa was being discussed, it is said, however, that *The Federalist* was quoted oftener than any other work upon government. It is interesting to note that in Canada the powers not specifically given to the Provinces are reserved to the Dominion. Australia, on the other hand, followed the example of the United States, and powers not specifically given to the Commonwealth are reserved to the States. Ireland of course is not composed of different states, and this question did not arise.

In all these members of the "British Commonwealth of Nations" the Governor-General is appointed by the Crown, and in none of them is he anything like so powerful as the President of the United States. All of them have the "parliamentary system," which means that the legislative controls the executive. (See page 1833.) In the United States when the Congress and the President differ in politics the whole business of the nation may be brought almost to a standstill. This does not happen under the parliamentary system. The new republics which have sprung up in Europe as a result of the World War have generally adopted the parliamentary system. Dozens of republics have been established since the Fathers of the Constitution finished their work.

It was a new kind of government, as Madison said, and has proved both stable and flexible. It has been strong enough to stand the strain of foreign and domestic wars. It served for a nation of thirteen weak states along the Atlantic with less than 4,000,000 people. It continues to serve for a nation of forty-eight states stretching from ocean to ocean, with nearly 120,000,000 people, and with possessions beyond the seas. The young nation was almost entirely engaged in agriculture; the nation of to-day has become the greatest manufacturing country in the world. With little change the same Constitution and form of government have served both.

CONSTITUTION OF THE UNITED STATES OF AMERICA *

WE the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquillity, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty, to ourselves and our Posterity, do ordain and establish this CONSTITUTION for the United States of America.

Note. The original draft of the Constitution read: "We the People of the States of New Hampshire, Massachusetts," etc. As it was probable that some of the states would not ratify, the names of the states were omitted in the final draft, but there was no intention of overruling the powers of the states.

ARTICLE I

Legislative Powers—The House of Representatives

SECTION 1. All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION 2. The House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

No person shall be a Representative who shall not have attained to the Age of twenty-five Years, and been seven Years a Citizen of the United States, and who shall not, when elected, be an Inhabitant of that State in which he shall be chosen.

Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons. The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct. The number of Representatives shall not exceed one for every thirty Thousand, but each State shall have at Least one Representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to chuse three, Massachusetts eight, Rhode Island and Providence Plantations one, Connecticut five, New York six, New Jersey four, Pennsylvania eight, Delaware one, Maryland six, Virginia ten, North Carolina five, South Carolina five, and Georgia three.

Note. Nearly all of this paragraph has been superseded by amendments or by circumstances. The income tax, which has been declared a direct tax, need not now be levied according to population (Amendment XVI). The three-fifths rule no longer

* Reprinted from the text issued by the State Department.

CONSTITUTION OF THE UNITED STATES OF AMERICA

holds (Amendments XIII and XIV). The population to a representative is now over 200,000. The assignment of representatives to the states was changed after the first census of 1790 and every ten years afterward.

When vacancies happen in the Representation from any State, the Executive Authority thereof shall issue Writs of Election to fill such Vacancies.

The House of Representatives shall chuse their Speaker and other Officers; and shall have the sole Power of Impeachment.

The Senate—Election, Qualifications and Special Powers

SECTION 3. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof, for Six Years; and each Senator shall have one Vote.

Note. See Amendment XVII.

Immediately after they shall be assembled in Consequence of the first Election, they shall be divided as equally as may be into three Classes. The Seats of the Senators of the first Class shall be vacated at the Expiration of the second Year, of the second Class at the Expiration of the fourth Year, and of the third Class at the Expiration of the sixth Year, so that one third may be chosen every second Year; and if Vacancies happen by Resignation, or otherwise, during the Recess of the Legislature of any State, the Executive thereof may make temporary Appointments until the next Meeting of the Legislature, which shall then fill such Vacancies.

Note. These two paragraphs have been modified by Amendment XVII, which provides for the election of senators by the people.

No Person shall be a Senator who shall not have attained to the Age of thirty Years, and been nine Years a Citizen of the United States, and who shall not, when elected, be an Inhabitant of that State for which he shall be chosen.

The Vice President of the United States shall be President of the Senate, but shall have no Vote, unless they be equally divided.

The Senate shall chuse their other Officers, and also a President pro tempore, in the Absence of the Vice President, or when he shall exercise the Office of President of the United States.

The Senate shall have the sole Power to try all Impeachments. When sitting for that purpose, they shall be on Oath or Affirmation. When the President of the United States is tried, the Chief Justice shall preside: And no Person shall be convicted without the Concurrence of two thirds of the Members present.

Judgment in Cases of Impeachment shall not extend further than to removal from Office, and disqualification to hold and enjoy any Office of honor Trust or Profit under the United States: but the Party convicted shall nevertheless be liable and subject to Indictment, Trial, Judgment and Punishment, according to law.

Note. Only a few officers have been impeached, and fewer have been convicted. In several cases the officer resigned, and therefore was not tried. One president, Andrew Johnson, was impeached but was not convicted, as you may read on page 2444. As you read in the last paragraph of Section 2, the House of Representatives must vote to impeach. That body also appoints a committee to prosecute the charges before the Senate sitting as a court.

CONSTITUTION OF THE UNITED STATES OF AMERICA

SECTION 4. The Times, Places and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by Law make or alter such Regulations, except as to the Places of chusing Senators.

Note. Congress in 1845 fixed the Tuesday following the first Monday in November as the date for choosing electors, in years that can be divided by four. In 1872 it was ordered that Representatives be elected on this date in the even years, though a few states were later permitted to elect earlier. Nearly all the states have adopted this day for state elections as well.

The Congress shall assemble at least once in every Year, and such Meeting shall be on the first Monday in December, unless they shall by Law appoint a different Day.

Congress—Membership, Rules, Procedure, Privileges

SECTION 5. Each House shall be the Judge of the Elections, Returns and Qualifications of its own Members, and a Majority of each shall constitute a Quorum to do Business; but a smaller Number may adjourn from day to day, and may be authorized to compel the Attendance of absent Members, in such Manner, and under such Penalties as each House may provide.

Each House may determine the Rules of its Proceedings, Punish its Members for disorderly behaviour, and, with the Concurrence of two thirds, expel a member.

Each House shall keep a Journal of its Proceedings, and from time to time publish the same, excepting such Parts as may in their Judgment require Secrecy; and the Yeas and Nays of the Members of either House on any question shall, at the Desire of one fifth of those Present, be entered on the Journal.

Neither House, during the Session of Congress, shall, without the Consent of the other, adjourn for more than three days, nor to any other Place than that in which the two Houses shall be sitting.

SECTION 6. The Senators and Representatives shall receive a Compensation for their Services, to be ascertained by Law, and paid out of the Treasury of the United States. They shall in all Cases, except Treason, Felony and Breach of the Peace, be privileged from Arrest during their Attendance at the Session of their respective Houses, and in going to and returning from the same; and for any Speech or Debate in either House, they shall not be questioned in any other Place.

No Senator or Representative shall, during the Time for which he was elected, be appointed to any civil Office under the Authority of the United States, which shall have been created, or the Emoluments whereof shall have been encreased during such time; and no Person holding any Office under the United States, shall be a Member of either House during his Continuance in Office.

How a Bill Becomes a Law

SECTION 7. All Bills for raising Revenue shall originate in the House of Representatives; but the Senate may propose or concur with Amendments as on other Bills.

CONSTITUTION OF THE UNITED STATES OF AMERICA

Every Bill which shall have passed the House of Representatives and the Senate, shall, before it becomes a Law, be presented to the President of the United States; If he approve he shall sign it, but if not he shall return it, with his Objections, to that House in which it shall have originated, who shall enter the Objections at large on their Journal, and proceed to reconsider it. If after such Reconsideration two thirds of that House shall agree to pass the Bill, it shall be sent, together with the Objections, to the other House, by which it shall likewise be reconsidered, and if approved by two thirds of that House, it shall become a law. But in all such Cases the Votes of both Houses shall be determined by Yeas and Nays, and the Names of the Persons voting for and against the Bill shall be entered on the Journal of each House respectively. If any Bill shall not be returned by the President within ten Days (Sundays excepted) after it shall have been presented to him, the same shall be a Law, in like manner as if he had signed it, unless the Congress by their Adjournment prevent its Return, in which Case it shall not be a Law.

Every Order, Resolution, or Vote to which the Concurrence of the Senate and House of Representatives may be necessary (except on a question of Adjournment) shall be presented to the President of the United States; and before the Same shall take Effect, shall be approved by him, or being disapproved by him, shall be repassed by two thirds of the Senate and House of Representatives, according to the Rules and Limitations prescribed in the Case of a Bill.

Specific Powers of Congress

SECTION 8. The Congress shall have Power To lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States;

To borrow Money on the credit of the United States;

To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes;

To establish an uniform Rule of Naturalization, and uniform Laws on the subject of Bankruptcies throughout the United States;

To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures;

To provide for the Punishment of counterfeiting the securities and current Coin of the United States;

To establish Post Offices and post Roads;

To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

To constitute Tribunals inferior to the supreme Court;

To define and punish Piracies and Felonies committed on the high Seas, and Offences against the Law of Nations;

To declare War, grant Letters of Marque and Reprisal, and make Rules concerning Captures on Land and Water;

To raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years;

CONSTITUTION OF THE UNITED STATES OF AMERICA

To provide and maintain a Navy;

To make Rules for the Government and Regulation of the land and naval Forces;

To provide for calling forth the Militia to execute the Laws of the Union, suppress Insurrections and repel Invasions;

To provide for organizing, arming, and disciplining, the Militia, and for governing such Part of them as may be employed in the Service of the United States, reserving to the States respectively, the Appointment of the Officers, and the Authority of training the Militia according to the discipline prescribed by Congress;

To exercise exclusive Legislation in all Cases whatsoever, over such District (not exceeding ten Miles square) as may, by Cession of particular States, and the Acceptance of Congress, become the Seat of the Government of the United States, and to exercise like Authority over all Places purchased by the Consent of the Legislature of the State in which the same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings;—And

To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers, and all other Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof.

Note. Congress has exercised many powers not specifically mentioned above or elsewhere in the Constitution. For the most part they have been based upon the words “necessary and proper” in the paragraph above and upon the command to provide for the “general welfare” in the first paragraph of the section. The next question is what things are necessary and proper. Ever since the Constitution was adopted men have differed as to the answer. The Supreme Court has final decision. If the people are not satisfied the Constitution can be changed by amendment. Examples of such changes are the Thirteenth and the Sixteenth amendments.

Things Forbidden to Congress

SECTION 9. The Migration or Importation of such Persons as any of the States now existing shall think proper to admit, shall not be prohibited by the Congress prior to the Year one thousand eight hundred and eight, but a Tax or duty may be imposed on such Importation, not exceeding ten dollars for each Person.

Note. This paragraph became meaningless on the date mentioned.

The Privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it.

No Bill of Attainder or ex post facto Law shall be passed.

No Capitation, or other direct, Tax, shall be laid, unless in Proportion to the Census or Enumeration hereinbefore directed to be taken.

Note. The direct-tax provision of this paragraph has been modified by the Sixteenth Amendment.

No Tax or Duty shall be laid on Articles exported from any State.

No Preference shall be given by any Regulation of Commerce or Revenue to the Ports of one State over those of another: nor shall Vessels bound to, or from, one State, be obliged to enter, clear, or pay Duties in another.

CONSTITUTION OF THE UNITED STATES OF AMERICA

No Money shall be drawn from the Treasury, but in Consequence of Appropriations made by Law; and a regular Statement and Account of the Receipts and Expenditures of all public Money shall be published from time to time.

No Title of Nobility shall be granted by the United States: and no Persons holding any Office of Profit or Trust under them, shall, without the Consent of the Congress, accept of any present, Emolument, Office, or Title, of any kind whatever, from any King, Prince or foreign State.

Things Forbidden to the States

SECTION 10. No State shall enter into any Treaty, Alliance, or Confederation; grant Letters of Marque and Reprisal; coin Money; emit Bills of Credit; make any thing but gold and silver Coin a Tender in Payment of Debts; pass any Bill of Attainder, ex post facto Law or Law impairing the Obligation of Contracts, or grant any Title of Nobility.

No State shall, without the Consent of the Congress, lay any Imposts or Duties on Imports or Exports except what may be absolutely necessary for executing its inspection Laws; and the net Produce of all Duties and Imposts, laid by any State on Imports or Exports, shall be for the Use of the Treasury of the United States; and all such Laws shall be subject to the Revision and Control of the Congress.

No State shall, without the Consent of Congress, lay any Duty of Tonnage, keep Troops, or Ships of War in time of Peace, enter into any Agreement or Compact with another State, or with a foreign Power, or engage in War, unless actually invaded, or in such imminent Danger as will not admit of Delay.

Note. Most of the things mentioned above as forbidden to the states are powers which they had exercised, or might exercise, under the Confederation, and which they here gave up to the general government.

ARTICLE II

The President—Election, Qualifications, Succession

SECTION 1. The executive Power shall be vested in a President of the United States of America. He shall hold his Office during the Term of four Years, and, together with the Vice President, chosen for the same Term, be elected as follows:

Note. The first draft made the term seven years and forbade re-election. This was changed when the method of election was changed.

Each State shall appoint, in such Manner as the Legislature thereof may direct, a Number of Electors, equal to the whole Number of Senators and Representatives to which the State may be entitled in the Congress: but no Senator or Representative, or Person holding an Office of Trust or Profit under the United States, shall be appointed an Elector.

Note. This paragraph was the result of much discussion. The convention first voted that the president should be elected by Congress. Later it was suggested that he be elected by the governors of the states, but some of the members were not satisfied with either method. It seemed impossible for the people to make a wise choice, as there were few newspapers and the citizen of Georgia knew less of New Hampshire than he now knows of Siam. So finally it was agreed that in each state

CONSTITUTION OF THE UNITED STATES OF AMERICA

prominent citizens should be elected, and these should meet in the state capital, look over all the great men in the country and make a free choice. Everyone was pleased with this plan, but by 1800 parties had arisen and the system broke down. Though an elector cannot be punished if he does not vote for the party nominee, he is expected to do so, and always does.

The Electors shall meet in their respective States, and vote by Ballot for two Persons, of whom one at least shall not be an Inhabitant of the same State with themselves. And they shall make a List of all the Persons voted for, and of the Number of Votes for each; which List they shall sign and certify, and transmit sealed to the Seat of the Government of the United States, directed to the President of the Senate. The President of the Senate, shall, in the Presence of the Senate and House of Representatives, open all the Certificates, and the Votes shall then be counted. The Person having the greatest Number of Votes shall be the President, if such Number be a Majority of the whole Number of Electors appointed; and if there be more than one who have such Majority, and have an equal Number of Votes, then the House of Representatives shall immediately chuse by Ballot one of them for President; and if no Person have a Majority, then from the five highest on the List the said House shall in like Manner chuse the President. But in chusing the President, the Votes shall be taken by States, the Representation from each State having one Vote; A quorum for this Purpose shall consist of a Member or Members from two thirds of the States, and a Majority of all the States shall be necessary to a Choice. In every Case, after the Choice of the President, the Person having the greatest Number of Votes of the Electors shall be the Vice President. But if there should remain two or more who have equal Votes, the Senate shall chuse from them by Ballot the Vice President.

Note. This paragraph was superseded in 1804 by the Twelfth Amendment.

The Congress may determine the Time of chusing the Electors, and the Day on which they shall give their Votes; which Day shall be the same throughout the United States.

See Note Art. I, Sec. 4, above.

No Person except a natural born Citizen, or a Citizen of the United States, at the time of the Adoption of this Constitution, shall be eligible to the Office of President; neither shall any Person be eligible to that Office who shall not have attained to the Age of thirty-five Years, and been fourteen Years a Resident within the United States.

Note. Though it was possible for a foreign-born citizen to become president in the early years of the nation, none was ever elected. All of our presidents except Roosevelt were over forty-five when inaugurated, and most of them were over fifty. See pages 3951-54.

In Case of the Removal of the President from Office, or of his Death, Resignation, or Inability to discharge the Powers and Duties of the said Office, the Same shall devolve on the Vice President, and the Congress may by Law provide for the Case of Removal, Death, Resignation or Inability, both of the President and Vice President, declaring what Officer shall then act as President and such Officer shall act accordingly, until the Disability be removed, or a President shall be elected.

CONSTITUTION OF THE UNITED STATES OF AMERICA

Note. In 1791 Congress provided that in case of the death or disability of both president and vice-president, the president pro-tempore of the senate, and after him the speaker of the House of Representatives, should act as president. In 1886 the Presidential Succession Act provided that the members of the Cabinet (if eligible) should succeed in the order of the creation of their offices. The order of creation is State, Treasury, War, Attorney-General, Postmaster General, Navy, and Interior. The departments not mentioned, Agriculture, Commerce, and Labor, have been created since 1886.

The President shall at stated Times, receive for his **Services**, a Compensation, which shall neither be Increased nor diminished during the Period for which he shall have been elected, and he shall not receive within that Period any other Emolument from the United States, or any of them.

Note. Up to the beginning of Grant's second term the president received \$25,000 a year. From that time until 1909 the salary was \$50,000. Since 1909 it has been \$75,000, with \$25,000 more for traveling expenses. In addition he has the use of the White House, some of the expenses of which are paid by the nation.

Before he enter on the Execution of his Office, he shall take the following Oath or Affirmation:—

"I do solemnly swear (or affirm) that I will faithfully execute the Office of President of the United States, and will to the best of my Ability, preserve, protect, and defend the Constitution of the United States."

The Powers and Duties of the President

SECTION 2. The President shall be Commander in Chief of the Army and Navy of the United States, and of the Militia of the several States, when called into the actual Service of the United States; he may require the Opinion, in writing, of the principal Officer in each of the executive Departments, upon any Subject relating to the Duties of their respective Offices, and he shall have Power to grant Reprieves and Pardons for Offences against the United States, except in Cases of Impeachment.

Note. The Cabinet is not mentioned by name in the Constitution. The only reference is that to "executive departments" in the paragraph above.

He shall have Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur; and he shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the Supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by Law; but the Congress may by Law vest the Appointment of such inferior Officers, as they think proper, in the President alone, in the Courts of Law, or in the Heads of Departments.

Note. These provisions have been the occasion of much friction between the president and the Senate. That body has often refused to ratify treaties made under the direction of the president, and has also refused many times to confirm his appointments to office.

The President shall have Power to fill up all Vacancies that may happen during the Recess of the Senate, by granting Commissions which shall expire at the End of their next Session.

SECTION 3. He shall from time to time give to the Congress Information

CONSTITUTION OF THE UNITED STATES OF AMERICA

of the State of the Union, and recommend to their Consideration such Measures as he shall judge necessary and expedient; he may, on extraordinary Occasions, convene both Houses, or either of them, and in Case of Disagreement between them, with Respect to the Time of Adjournment, he may adjourn them to such Time as he shall think proper; he shall receive Ambassadors and other public Ministers; he shall take Care that the Laws be faithfully executed, and shall Commission all the Officers of the United States.

Note. Washington and Adams addressed Congress in person. Jefferson was a poor speaker and also thought that the practice was too much like the king's "Speech from the Throne." He sent his message in writing, and all other presidents down to Wilson followed his example. Wilson revived the earlier practice and was followed by Harding. Coolidge has followed both practices.

SECTION 4. The President, Vice-president and all civil Officers of the United States, shall be removed from Office on Impeachment for, and Conviction of, Treason, Bribery, or other high Crimes and Misdemeanors.

ARTICLE III

The Judicial Department

SECTION 1. The judicial Power of the United States, shall be vested in one supreme Court, and in such inferior Courts as the Congress may from time to time ordain and establish. The Judges, both of the supreme and inferior Courts, shall hold their Offices during good Behaviour, and shall, at stated Times, receive for their Services, a Compensation, which shall not be diminished during their continuance in Office.

Note. The first Congress in 1789 fixed the number of Supreme Court justices at six. This number has been changed from time to time. At present the court consists of a chief justice and eight associate justices. Below the supreme courts are circuit and district courts. Each state includes at least one district, and the larger states are divided into several districts with one or more judges for each. In all there are about 125 district judges. In every district there is a United States Attorney who represents the United States, and a United States Marshal whose duties are similar to those of a sheriff in the state court. The whole country is divided into nine circuits, with three to six circuit judges for each. These courts hear appeals from the district courts and in some cases their judgment is final. There is also a Federal Court of Claims, which examines claims against the United States, and a Court of Customs Appeals. Special federal courts are organized for the District of Columbia, Alaska, the Canal Zone, Hawaii and Porto Rico.

SECTION 2. The judicial Power shall extend to all Cases, in Law and Equity, arising under this Constitution, the Laws of the United States, and treaties made, or which shall be made, under their Authority;—to all Cases affecting Ambassadors, other public Ministers and Consuls;—to all Cases of admiralty and maritime Jurisdiction;—to Controversies to which the United States shall be a Party;—to Controversies between two or more States;—between a State and Citizens of another State;—between Citizens of different States,—between Citizens of the same State claiming Lands under Grants of different States, and between a State, or the Citizens thereof, and foreign States, Citizens, or Subjects.

Note. By the Eleventh Amendment a state may not be sued by a citizen of another state or by a foreigner.

CONSTITUTION OF THE UNITED STATES OF AMERICA

In all Cases affecting Ambassadors, other public Ministers and Consuls, and those in which a State shall be Party, the supreme Court shall have original Jurisdiction. In all the other Cases before mentioned the Supreme Court shall have appellate Jurisdiction, both as to Law and Fact, with such Exceptions, and under such regulations as the Congress shall make.

The Trial of all Crimes, except in Cases of Impeachment, shall be by Jury; and such Trial shall be held in the State where the said Crimes shall have been committed; but when not committed within any State, the Trial shall be at such Place or Places as the Congress may by Law have directed.

SECTION 3. Treason against the United States, shall consist only in levying War against them, or in adhering to their Enemies, giving them Aid and Comfort. No Person shall be convicted of Treason unless on the Testimony of two Witnesses to the same overt Act, or on Confession in open Court.

The Congress shall have Power to declare the Punishment of Treason, but no Attainder of Treason shall work Corruption of Blood or Forfeiture except during the Life of the Person attainted.

ARTICLE IV

The United States and the States

SECTION 1. Full Faith and Credit shall be given in each State to the public Acts, Records, and judicial Proceedings of every other State. And the Congress may by general Laws prescribe the Manner in which such Acts, Records and Proceedings shall be proved, and the effect thereof.

SECTION 2. The Citizens of each State shall be entitled to all Privileges and Immunities of Citizens in the several States.

A Person charged in any State with Treason, Felony, or other Crime, who shall flee from Justice, and be found in another State shall on Demand of the executive Authority of the State from which he fled, be delivered up, to be removed to the State having Jurisdiction of the Crime.

Note. This means that a criminal fleeing into another state must be given up upon the demand of the governor of the state where the crime was committed. This is called Extradition.

No Person held to Service or Labour in one State, under the Laws thereof, escaping into another, shall, in consequence of any Law, or Regulation therein, be discharged from such Service or Labour, but shall be delivered up on Claim of the Party to whom such Service or Labour may be due.

Note. Under this provision Congress passed the Fugitive Slave Laws.

SECTION 3. New States may be admitted by the Congress into this Union; but no new State shall be formed or erected within the Jurisdiction of any other State; nor any State be formed by the Junction of two or more States, or Parts of States, without the Consent of the Legislatures of the States concerned as well as of the Congress.

The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be so construed as to Prejudice any Claims of the United States, or of any particular State.

CONSTITUTION OF THE UNITED STATES OF AMERICA

SECTION 4. The United States shall guarantee to every State in this Union a Republican Form of Government, and shall protect each of them against Invasion; and on Application of the Legislature, or of the Executive (when the Legislature cannot be convened) against domestic Violence.

ARTICLE V

How the Constitution May Be Amended

The Congress, whenever two thirds of both Houses shall deem it necessary, shall propose Amendments to this Constitution, or, on the Application of the Legislature of two thirds of the several States, shall call a Convention for proposing Amendments, which, in either case, shall be valid to all Intents and Purposes as part of this Constitution, when ratified by the Legislature of three fourths of the several States, or by Conventions in three fourths thereof, as the one or the other Mode of Ratification may be proposed by the Congress; Provided that no Amendment which may be made prior to the Year one thousand eight hundred and eight shall in any Manner affect the first and fourth Clauses in the Ninth Section of the first Article; and that no State, without its Consent, shall be deprived of its equal Suffrage in the Senate.

ARTICLE VI

All Debts contracted and Engagements entered into, before the Adoption of this Constitution, shall be as valid against the United States under this Constitution, as under the Confederation.

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the land; and the Judges in every State shall be bound thereby, any thing in the Constitution or laws of any State to the Contrary notwithstanding.

The Senators and Representatives before mentioned, and the Members of the several State Legislatures, and all executive and judicial Officers, both of the United States and of the several States, shall be bound by Oath or Affirmation, to support this Constitution; but no religious Test shall ever be required as a Qualification to any Office or public Trust under the United States.

ARTICLE VII

The Ratification of the Conventions of nine States, shall be sufficient for the Establishment of this Constitution between the States so ratifying the Same.

Note. In this article the Convention plainly disregarded its instructions from Congress, which had voted that the changes should be approved by all the states. Since Rhode Island had sent no delegates to the Convention, it was expected that it would not ratify and that other states also might fail to approve. As you know, both Rhode Island and North Carolina failed to ratify, and the new government began without them.

Done in Convention by the Unanimous Consent of the States present the Seventeenth Day of September in the Year of our Lord one thousand seven hundred and Eighty seven and of the Independence of the United

CONSTITUTION OF THE UNITED STATES OF AMERICA

States of America the Twelfth. In Witness whereof We have hereunto subscribed our Names.

GO. WASHINGTON

Presidt and deputy from Virginia

New Hampshire

JOHN LANGDON

NICHOLAS GILMAN

Massachusetts

NATHANIEL GORHAM

RUFUS KING

Connecticut

WM: SAML. JOHNSON

ROGER SHERMAN

New York

ALEXANDER HAMILTON

New Jersey

WIL: LIVINGSTON

DAVID BREARLEY.

WM. PATTERSON.

JONA: DAYTON

Pennsylvania

B FRANKLIN

THOMAS MIFFLIN

ROBT MORRIS

GEO. CLYMER

THOS. FITZSIMONS

JARED INGERSOLL

JAMES WILSON

GOUV MORRIS

Delaware

GEO: READ

GUNNING BEDFORD JUN

JOHN DICKINSON

RICHARD BASSETT

JACO: BROOM

Maryland

JAMES MCHENRY

DAN OF ST THOS JENIFER

DANL. CARROLL

Virginia

JOHN BLAIR—

JAMES MADISON JR.

North Carolina

WM. BLOUNT

RICHD. DOBBS SPAIGHT

HU WILLIAMSON

South Carolina

J. RUTLEDGE

CHARLES COTESWORTH PINCKNEY

CHARLES PINCKNEY

PIERCE BUTLER

Georgia

WILLIAM FEW

ABR BALDWIN

Attest:

WILLIAM JACKSON, *Secretary*

ARTICLES IN ADDITION TO, AND AMENDMENT OF, THE CONSTITUTION OF THE UNITED STATES OF AMERICA, PROPOSED BY CONGRESS, AND RATIFIED BY THE LEGISLATURES OF THE SEVERAL STATES, PURSUANT TO THE FIFTH ARTICLE OF THE ORIGINAL CONSTITUTION.

I

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof, or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

II

A well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed.

CONSTITUTION OF THE UNITED STATES OF AMERICA

III

No soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.

IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any Criminal Case to be witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

VI

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining Witnesses in his favor, and to have the Assistance of Counsel for his defence.

VII

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law.

VIII

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

X

The powers not delegated to the United States by the Constitution nor

CONSTITUTION OF THE UNITED STATES OF AMERICA

prohibited by it to the States, are reserved to the States respectively, or to the people.

Note. We have told you above that several of the states, when ratifying the Constitution, proposed amendments. The first Congress, meeting in New York in 1789, adopted twelve amendments and submitted them to the states. Ten of the twelve were ratified, and on December 15, 1791, were declared to be a part of the Constitution.

XI

The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State.

XII

The Electors shall meet in their respective states, and vote by ballot for President and Vice President, one of whom, at least, shall not be an inhabitant of the same state with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President, and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which lists they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the President of the Senate;—The President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates and the votes shall then be counted;—The person having the greatest number of votes for President, shall be the President, if such number be a majority of the whole number of electors appointed; and if no person have such majority, then from the persons having the highest numbers not exceeding three on the list of those voted for as President, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President, the vote shall be taken by states, the representation from each state having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the states, and a majority of all the states shall be necessary to a choice. And if the House of Representatives shall not choose a President whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in the case of the death or other constitutional disability of the President. The person having the greatest number of votes as Vice-President, shall be Vice-President, if such number be a majority of the whole number of electors appointed, and if no person have a majority, then from the two highest numbers on the list, the Senate shall choose the Vice-President; a quorum for the purpose shall consist of two-thirds of the whole number of senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of President shall be eligible to that of Vice-President of the United States.

Note. In the election of 1800 Thomas Jefferson and Aaron Burr received the same number of electoral votes, and the tie was broken by the House of Representatives after much ill-feeling. To prevent such an occurrence in the future this amendment was sent to the states in 1803, and on September 25, 1804, became a part of the Constitution. It supersedes the third paragraph of Article II, section 1.

CONSTITUTION OF THE UNITED STATES OF AMERICA

XIII

SECTION 1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

SECTION 2. Congress shall have power to enforce this article by appropriate legislation.

Note. The Emancipation Proclamation of January 1, 1863, gave freedom only to "slaves within any State, or designated part of a State, the people whereof shall then be in rebellion against the United States." Slaves in those parts of the Confederacy then held by the Union forces and slaves in the four slave-holding states which did not secede were not freed. All slaves were freed by this amendment, which was sent to the states February 1, 1865, and declared to have been ratified December 18, 1865.

XIV

SECTION 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States: nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

SECTION 2. Representatives shall be apportioned among the several states according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for President and Vice President of the United States, Representatives in Congress, the Executive and Judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male inhabitants of such State, being twenty-one years of age, and citizens of the United States, or in any way abridged, except for participation in rebellion, or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

SECTION 3. No person shall be a Senator or Representative in Congress, or elector of President and Vice President, or hold any office, civil or military, under the United States, or under any State, who having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State legislature or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof. But Congress may by a vote of two-thirds of each House remove such disability.

SECTION 4. The validity of the public debt of the United States, authorized by law, including debts incurred for payment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations and claims shall be held illegal and void.

CONSTITUTION OF THE UNITED STATES OF AMERICA

SECTION 5. The Congress shall have power to enforce, by appropriate legislation, the provisions of this article.

Note. This amendment has several parts and was intended to accomplish several purposes. The emancipation of the slaves did not make them citizens. In fact, it gave the whites in the slave-holding states greater representation, for now they could count all the negroes in the population instead of three-fifths of them, and these negroes could not vote. Then, too, several of the Southern states had passed rather harsh laws which applied only to negroes. Again, President Johnson had been liberal in pardoning Southern leaders, and Congress wished to take this power from him. It also wished to make impossible the payment of the Confederate debt. Therefore, the first paragraph declares anyone born or naturalized in the United States to be a citizen, and forbids discrimination. The second paragraph punishes by loss of representation any state which prevents citizens from voting, while the third limited the pardoning power of the president. The fourth forbids the payment of the Confederate debt. This amendment was submitted to the states June 16, 1866, and on July 23, 1868, became a part of the Constitution.

XV

SECTION 1. The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude.

SECTION 2. The Congress shall have power to enforce this article by appropriate legislation.

Note. In spite of the Fourteenth Amendment the Southern states were slow to give the vote to the negro. The Fifteenth was intended to force them to grant this right. It was submitted February 27, 1869, and was ratified March 30, 1870.

XVI

The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration.

Note. In Article I, section 9, third paragraph, Congress is forbidden to levy any direct taxes except in proportion to population. That is, states of the same population must pay the same amount of tax. The Income Tax is a tax levied on income rather than on population, and in 1894 the Supreme Court declared it to be a direct tax. Agitation to change the Constitution began, and July 12, 1909, the amendment was submitted to the states, and was declared to be ratified February 25, 1913.

XVII

The Senate of the United States shall be composed of two Senators from each State, elected by the people thereof, for six years; and each Senator shall have one vote. The electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State Legislatures.

When vacancies happen in the representation of any State in the Senate, the executive authority of such State shall issue writs of election to fill such vacancies: *Provided*, That the Legislature of any State may empower the executive thereof to make temporary appointments until the people fill the vacancies by election as the Legislature may direct.

Note. Dissatisfaction with the election of senators by the legislatures of the states began to spring up after the Civil War, and this amendment was submitted to the states May 16, 1912, and was declared ratified May 31, 1913.

CONSTITUTION OF THE UNITED STATES OF AMERICA

XVIII

SECTION 1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

SECTION 2. The Congress and the several States shall have concurrent power to enforce this article by appropriate legislation.

SECTION 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

Note. Opposition to the manufacture and sale of intoxicating liquors is not new in the United States; beginning with Maine in 1851, many states had passed prohibitory laws. This amendment was submitted to the states December 18, 1917, was declared ratified January 29, 1919, but did not go into effect until January 16, 1920.

XIX

The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of sex.

Congress shall have power to enforce this article by appropriate legislation.

Note. Some colonial women demanded the right to vote, and in Massachusetts many did vote. The first constitution of New Jersey in 1776 gave them the right to vote, but it was taken away in 1807. The demand for equal suffrage grew in strength, and Wyoming, when organized as a territory in 1869, gave women equal rights. Other territories and states followed, and in May 21, 1919, when the amendment was submitted to the states, women had equal voting rights in fourteen states and partial rights in many more. The amendment was declared ratified August 25, 1920.





SCHOOL-SUBJECT GUIDE

THE School-Subject Guide is an analysis of the contents of THE BOOK OF KNOWLEDGE according to the general classifications used in the schools. The ten main divisions into which the matter of the book is thus divided are given below. In each division the main articles, found to the extreme left, are given in black type in the order in which they occur in the volumes; under each the related subject matter is grouped as Supplementary Reading, Stories, etc., also in black type but a little to the right. The Wonder Questions on each subject follow, printed in light-face type. From this arrangement it is possible for anyone using the Guide to see at a glance the scope of the information on every subject contained in the volumes. This will not only save time but sometimes offer suggestions. The analysis of the Guide, which follows, gives the page numbers of the various divisions and subdivisions in each subject.

	PAGE		PAGE
GEOGRAPHY, HISTORY, CIVICS AND ECONOMICS		Birds . . .	7604
The United States . . .	7583	Reptiles . . .	7606
Canada . . .	7586	Amphibians . . .	7606
Mexico and Central America . . .	7587	Fish . . .	7606
South America . . .	7587	Crustaceans . . .	7606
West Indies . . .	7587	Insects . . .	7606
Ancient Nations . . .	7587	Annelids . . .	7607
The British Empire . . .	7589	Marine Life . . .	7607
European Nations . . .	7593		
Asia and Africa . . .	7597	PHYSIOLOGY, HYGIENE AND PSYCHOLOGY	
The Jewish Race . . .	7597	Physiology	
Civics and Economics . . .	7597	Microbes . . .	7608
		The Circulation . . .	7608
		Bones . . .	7609
		Muscles . . .	7609
		Nerves . . .	7609
		The Brain . . .	7609
		Glands . . .	7609
		The Senses . . .	7609
		Hygiene . . .	7611
		Psychology . . .	7612
NATURE STUDY		GENERAL SCIENCE	
Plant Life		Astronomy . . .	7613
Plant Life in General . . .	7599	Geology . . .	7614
Trees and Shrubs . . .	7600	Physical Geography . . .	7615
Grasses and Ferns . . .	7600		
Fruits and Nuts . . .	7601		
Other Plants and Vege- tables . . .	7601		
Flowers . . .	7601		
Animal Life			
Mammals . . .	7602		

	PAGE		PAGE
Physics		Indoor Amusements .	7641
Properties of Matter .	7617	Animals and Plants .	7642
Magnetism and Elec-		Hobbies . . .	7642
tricity . . .	7618	Brain Resters and Testers	
Light . . .	7619	Puzzles, Problems and	
Sound . . .	7620	Illusions . .	7642
Heat . . .	7621	Tricks . . .	7643
Chemistry . . .	7622		
APPLIED SCIENCE AND		HELPS TO LEARNING	
INDUSTRY		Matching Games . .	7645
Food and Its Sources .	7624	Color Games . . .	7645
Clothing . . .	7626	Reading . . .	7645
Important Manufactures .	7627	Writing . . .	7646
Transportation and Com-		Arithmetic . . .	7646
munication . . .	7627	Drawing . . .	7647
Engineering		Telling Time . . .	7647
Civil . . .	7629	Nature Games . .	7647
Mechanical . . .	7631		
Mining . . .	7631	BIOGRAPHY	
Electrical . . .	7632	Men Who Have Made	
THINGS TO MAKE AND		History . . .	7648
THINGS TO DO		Explorers and Pioneers .	7650
Manual Training		Great Teachers . .	7651
Tools and Their Uses .	7633	Early Religious Leaders .	7651
Woods . . .	7633	Scientists and Inventors .	7651
Things Made from		Naturalists . . .	7653
Wood . . .	7634	Writers and Artists .	7653
Things Made from		Miscellaneous . .	7655
Materials Other than		ENGLISH AND LITERATURE	
Wood . . .	7634	Speech and Writing .	7656
Drawing, Designing and		History of Literature	
Printing . . .	7635	English . . .	7657
Paper Handwork .	7635	American . . .	7666
Toy-making for the Boy		Canadian . . .	7669
and Girl . . .	7636	Eastern . . .	7670
Practical Science .	7637	Greek . . .	7670
Household Arts		Roman . . .	7670
Cooking . . .	7637	European . . .	7671
Sewing . . .	7638	Poetry . . .	7673
Decoration . . .	7638	Famous Books . .	7688
Helpful Things about		Stories . . .	7693
a House . . .	7639	FINE ARTS	
First Aid . . .	7639	Painting . . .	7702
Recreation		Sculpture . . .	7712
Outdoor Amusements .	7639	Architecture . .	7714
Physical Exercises .	7641	Music . . .	7722



GEOGRAPHY, HISTORY, CIVICS AND ECONOMICS



The United States Geography

North America before the White Men, 1-153

Supplementary Reading

The Indians of the United States, 19-7235

See also **Geology**, page 7614

The United States of America, 10-3397

Supplementary Reading

The United States National Parks, 7-2281

The Forest and Its Guardians, 8-2803

The Northeastern States, 10-3401; 11-3773; 12-4145

Supplementary Reading

Washington, Our Capital City, 5-1533

The Erie Canal, 13-4881

What One May See in New York, 17-6207

What a Great City Does for Its Children, 15-5621

A River under a City, 14-5055

The American Museum of Natural History, 18-6613

West Point and Annapolis, 18-6701

Land Birds of the Northern Province, 13-4759; 13-4829

Flowers of the East, 17-6273; 18-6567

The Southern States, 13-4517; 14-4889

Supplementary Reading

Birds of the Southern Province, 14-5017

Wild Flowers of the South, 19-7085

- How Cotton Becomes Cloth, 14-5167
The Mississippi, 16-5653
Wonderful Mammoth Cave, 4-1299
The North Central States, 15-5273; 17-6037
 Supplementary Reading
 Chicago, the Wonder City, 19-7105
 Flowers of the Middle West, 18-6655
 The Mississippi, 16-5653
The Western States, 18-6425; 19-6841
 Supplementary Reading
 Yellowstone Park, 2-729
 Birds of the West, 14-5133
 The American Desert and Its Inhabitants, 9-3025
 Making the Desert Blossom, 7-2543
 Flowers of the Pacific Coast, 19-6927
American Territory across the Seas, 10-3583
 Supplementary Reading
 The Panama Canal, 1-361
 Conquerors of Disease, 15-5481
 The Story of Alaska, 16-5789
 Hawaii, an Island Paradise, 15-5447
 Story
 A Heroine of the Southern Seas, 2-446

History

- Explorers of North America, 1-241
 Supplementary Reading
 Men Who Made the World Known, 1-83
 The Elizabethan Sea-dogs, 14-4959
 The Lost Colony of Roanoke, 17-6333
Building Homes in the New Land, 2-543
 Supplementary Reading
 Child Life in Colonial Days, 3-965
The Struggle for the Continent, 3-777
 Supplementary Reading
 Two Men Who Loved the Indians, 18-6631
 Winthrop and Benjamin Franklin, 10-3487
 Story
 The Last of the Mohicans, 1-267
The Revolution, 4-1157
 Supplementary Reading
 The Declaration of Independence, 20-7553
 Naval Heroes of Young America, 17-6325

Two Spies of the Revolution, 11-3995

Washington, 3-1039

Two American Pioneers, 6-2189

Building the New Nation, 5-1695

Supplementary Reading

Hamilton, 10-3488; Jefferson, 3-1042; Gallatin, 10-3489

John Quincy Adams, 10-3489; Andrew Jackson, 3-1043

Clay, Calhoun and Webster, 10-3490

Naval Heroes of Young America, 17-6325

The Growing West, 6-1905

Supplementary Reading

The Western States, 18-6425; 19-6841

Andrew Jackson, 3-1043; Benton, 10-3494

Stories

Ramona, 1-133

Two Years before the Mast, 9-3357

The Brothers' War, 7-2427

Supplementary Reading

Stephen A. Douglas, W. H. Seward, 10-3495

Lincoln, 3-1045; Grant, 3-1050

Lincoln's Gettysburg Address, 3-1038

Lee and Davis, 6-2088

Story

The Man without a Country, 7-2401

The United Nation, 8-2669

Supplementary Reading

Cleveland, Roosevelt, Wilson, 19-7193

How the United States Is Governed, 5-1787

Compare, How Canada Is Governed, 5-1833

Supplementary Reading

Administrations of the Presidents, 11-3937

Text of the Constitution, 20-7563

See also Civics and Economics, page 7597

Resources

The United Nation, 8-2669; 9-3207

Supplementary Reading

The Wonderful Story of Wheat, 5-1755

The Great Cereals, 5-1851

The Forage Plants, 7-2409

Plants That Clothe Us, 8-2783

Plants Useful in Industry, 9-3151

The Forest and Its Guardians, 8-2803

The Wealth of the Forest, 16-5985

Supplementary Reading

Some Important Timber Trees, 12-4245

Beauty Trees, 12-4381

American Trees in Summer, 12-4507

American Trees in Winter, 13-4635

Striking American Shrubs, 13-4775

Coal, 3-785

Oil and What It Can Do, 13-4533

Making Iron and Steel, 6-1935

For Industries generally see **Applied Science and Industry**, page 7624

Arts and Letters

American Colleges and Universities, 12-4307

American Literature, 12-4445; 13-4625; 13-4725; 13-4815; 14-5007

See also names of authors in **General Index** and in **Poetry Index**.

Painting in the United States, 9-3325; 10-3447

Sculpture in the United States, 14-4933

Architecture in the United States, 18-6679

Miscellaneous

The Boy Scouts of America, 12-4451

The Camp Fire Girls, 14-5061

Women in the United States, 14-5267

Some Famous Ladies of the White House, 2-391

The Days We Celebrate, 6-2087



Canada

The Dominion of Canada, 1-105

French Canada before the Conquest, 2-677

Stories

The Girl Who Held the Fort, 11-4089

Black Robe and White Heart, 15-5375

Two Men Who Loved the Indians, 18-6631

Canada as an English Colony, 3-941

Canada as a Nation, 4-1483

Supplementary Reading

A Friend to Fisher Folk, 7-2495

Dr. Grenfell.

Canada's Poets and Prose Writers, 14-5103; 15-5367

Painters of Canada, 10-3699

Sculptors of Canada, 14-5075

How Canada Is Governed, 5-1833

The French in Canada, 8-2949

The Great Lakes and the St. Lawrence, 6-1955

Outposts of Canada, 7-2557

Canada and the Fur Trade, 12-4337

Fur-farming in Canada, 13-4693

The Royal Canadian Mounted Police, 16-5831

Winter Sports in Canada, 10-3693



Mexico and Central America

Mexico and Central America, 19-7131

Supplementary Reading

Digging the Panama Canal, 1-361

South America

South America and Its Conquerors, 19-6857

The Republics of South America, 19-6975; 19-7033

West Indies

The Islands of the West Indies, 19-7097



Ancient Nations

The Chinese Republic, 2-421

Supplementary Reading

The Literatures of the East, 15-5459

Story of the Willow-pattern Plate, 4-1532

Stories from the Chinese, 5-1579

Confucius, 9-3090

Japan and Korea, 2-561

Story

The Mysterious Portrait, 9-3080

Babylonia and Assyria, 2-647

Supplementary Reading

The First Sculptors, 11-3873

Egypt's Fascinating Story, 3-807

Story

The Riddle of the Sphinx, 18-6610

Wonder Questions

What were the seven wonders of the Old World? 7-2604

What is papyrus? 11-3977

What is the Sudd on the Nile? 8-3016

Why are old sign writings called hieroglyphics? 7-2486

Why did the Egyptians use straw for their bricks? 12-4505

Persia and Its Story, 3-909

Supplementary Reading

Zoroaster, 9-3092

The Glory That Was Greece, 3-1069

Supplementary Reading

Aegean and Classical Painting, 2-447

The Early Days of Greece, 11-3987

The Golden Years of Greece, 12-4215

The Greek and Roman Builders, 15-5341

The Literature of Greece, 16-5747

The Iliad and the Odyssey, 6-1983

The Great Greeks, 2-701

The Immortal Three, 16-5915

Stories

The Race from Marathon, 3-887

The Sacrifice of Iphigenia, 11-3808

How Alcestis Gave Her Life, 8-2703

The Friendship of Damon and Pythias, 9-3064

The Dog That Remembered Odysseus, 1-146

Achilles and the Queen of the Amazons, 1-53

Penelope's Marvelous Tapestry, 1-53

The Quest of the Golden Fleece, 3-1100

Stories of Greece and Rome, 9-3083

Icarus and His Waxen Wings, 12-4197

Pandora, 14-5259

The Marvelous Adventures of Perseus, 15-5442

The Story of Midas, 16-6030

The Story of Cupid and Psyche, 19-7005

The March of the Ten Thousand, 14-5257

Wonder Questions

Who were the gods of Greece? 9-3226

Who was Pallas Athene? 3-1115

What is meant by "Greek kalends"? 5-1752

The British Empire

- What was the ancient Gordian knot? 8-3013
When and where did academies begin? 16-5741
What do we mean by a Pyrrhic victory? 17-6290
What were the ancient Olympic Games? 12-4401
What is the story of Dædalus? 9-3354
Who was Cassandra? 8-3014
Who were Castor and Pollux? 17-6288

The Grandeur That Was Rome, 4-1191

Supplementary Reading

- The Literature of Rome, 16-5907
Ben-Hur 10-3745
The Emperors of Rome, 5-1859
The First Great Men of Rome, 4-1361

Stories

- How Regulus Went Back to Die, 1-125
The Devotion of a Roman, 11-3806
A Frugal Hero of Ancient Rome, 3-889
The Last Fight at the Colosseum, 9-3064
The Mother of the Gracchi, 11-3811
The Geese That Kept Guard of Rome, 11-3982
Androcles and the Lion, 12-4488

Wonder Questions

- Who were the Old World gods? 9-3225
What was the sword of Damocles? 15-5362
Who used the famous words, "Veni, Vidi, Vici"? 7-2487
What do we mean by crossing the Rubicon? 18-6552
What is meant by the Appian Way? 8-3016
What was the origin of the Arch of Triumph? 9-3356
How did the Romans measure distance? 2-463



The British Empire

England in the Long Ago, 4-1315

Stories

- The Wonderful Story of the Venerable Bede, 1-126
King Arthur and His Knights, 19-6941
Sir Tristram of Lyonesse, 7-2460
The Lily Maid of Astolat, 16-5823
Geraint and Enid, 17-6320

The Founding of the Nation, 4-1429

- The fight between Saxon and Dane and the coming of the conquering Normans.

Stories

Lady Godiva, 17-6295

When the White Ship Went Down, 12-4223

The Beginning of Freedom, 5-1565

The story of the fight for freedom under the Norman and Angevin kings.

Supplementary Reading

The Men of the Crusades, 7-2583

The Song That Found a King, 16-5827

Robin Hood and His Merry Men, 2-397

The Canterbury Tales, 13-4767

Fighting for the Crown, 5-1679

The wars with Scotland and with France and the Wars of the Roses which changed so much of the social life of the country.

Supplementary Reading

St. Louis and St. Joan, 16-5813

Gothic Architecture in England, 16-5963

Men Who First Wrote English, 1-299

The Greatest Book in English, 2-473

Stories

The Little Princes in the Tower, 1-147

The Queen Who Gave Up Her Boy, 13-4581

Kate Barlass of the Broken Arm, 13-4579

The Times of the Tudors, 5-1813

Supplementary Reading

Kings and Queens of Scotland, 12-4205

The Elizabethan Sea-dogs, 14-4959

A Shining Splendor Comes, 2-721

Shakespeare.

Shakespeare's Plays, 3-833

Shakespeare at His Height, 3-983

The Great Writers of Shakespeare's Time, 3-1117

Westward Ho! 14-5027

Stories

The Daughter of Sir Thomas More, 14-5124

Mother Shipton, 7-2602

The Times of the Stuarts, 6-1973

The colonization of the New World, the strife between sovereign and parliament; the Commonwealth and the restoration of the monarchy.

Supplementary Reading

Cromwell and His Men, 11-3845

Bonnie Prince Charlie, 15-5639

Milton and His Poems, 4-1235
Poets of a Dull Day, 4-1357
The Diary-writers, 5-1727
Great Builders of London, 12-4353

Stories

The Great Fire of London, 8-2819
When Did You Last See Your Father? 13-4563
Brave Grizel Hume, 2-441

From the Stuarts to Napoleon, 6-2097

Supplementary Reading

The French Revolutionists, 6-2127
John Bunyan and Daniel Defoe, 4-1477
The Pilgrim's Progress, 15-5543
Doctor Johnson and His Friends, 5-1867
Swift, Addison and Steele, 5-1619
Poetry Goes Back to the Country, 6-2027
The Tellers of Tales, 6-2253
Great British Painters, 7-2327
The Golden Age of British Art, 6-2109

Napoleon and His Conquerors, 6-2199

Supplementary Reading

The Master of the People's Songs, 6-2135

Stories

How the French Reached Moscow, 7-2599
The Boy Whom France Forgot, 1-150
The Grandmother's Tale, 16-5921
The Burial of Sir John Moore, 2-607

The Wonderful Century, 7-2293

Supplementary Reading

Men Who Made the Railways, 5-1611
Two Pioneer Women, 16-5699
Edith Cavell, 17-6396
Heroes of Aviation, 17-6292
Rupert Brooke, 17-6393
The Waverley Novels, 11-4069
Wordsworth and His Friends, 7-2353
Byron, Scott, Shelley and Keats, 7-2489
Scott and His Stories, 7-2625
Dickens and Thackeray, 8-2731
The Writers of Essays, 8-2865
The Historians, 9-3201
Carlyle and Ruskin, 9-3311
Tennyson, 10-3469

- The Story of the Brownings, 10-3687
- Great Fiction in Its Full Tide, 11-3891
- The Prose Writers of Our Time, 11-3999
- Victorian and Georgian Poets, 12-4227
- The Art of Furniture-making, 18-6767
- A Century of Change in Art, 6-2229

Wonder Questions

- Why did the ancients call England Albion? 16-5741
- How did London begin? 17-6283
- How many islands are there in the British Isles? 18-6554
- What countries are included in the United Kingdom? 18-6557
- Who is the Speaker of the House of Commons? 11-4135
- Why does a British sailor salute the quarter deck? 4-1354

Australia, the Great South Land, 7-2463

Supplementary Reading

- Men Who Found Australia, 3-859
- Wool and Its Story, 15-5575

Wonder Questions

- Why is the Wallace Line important? 2-587
- What is the Lost Continent? 8-2717

New Zealand, the Beautiful Dominion, 7-2571

India, the Pearl of the East, 8-2695

How India Became an Empire, 8-2821

Stories

- Stories Told in India 3,000 Years Ago, 10-3718

Wonder Question

- What are the Eurasians and where do they live? 3-1115

The Story of Ireland, 8-2929

Stories

- The Story of St. Columba, 8-2844
- The Soul of Countess Cathleen, 15-5379

Wonder Question

- Who was St. Patrick? 17-6288

The British Empire in Africa, 9-3047

Stories

- Stories Told to Kafir Children, 5-1582
- The Kafir and the Lion, 16-6033

The Outposts of Empire, 9-3181

- Malta, Gibraltar, Ceylon, Aden, Mauritius, Bahamas, Jamaica,
British Honduras, British Guiana, the Bermudas, etc.

Islands of the South Pacific, 9-3295

Stories

A Heroine of the Southern Seas, 2-446

The Story of Father Damien, 7-2320



European Nations

France

The Beginnings of France, 10-3429

Supplementary Reading

The Men of the Crusades, 7-2583

St. Louis and St. Joan, 16-5813

The Literature of France, 18-6559

The Rise of French Art, 5-1873

France and Her Neighbors, 13-4699

Sculpture.

The Golden Years in Europe, 17-6155

Gothic Architecture.

Stories

The Brave Constable of France, 10-3468

Du Guesclin.

The Man Who Knew No Fear, 13-4577

Bayard.

The Devotion of a King's Daughter, 19-6881

Louis XII's daughter.

The Brave Countess Joan of Brittany, 12-4226

France in the Revolution, 10-3563

Supplementary Reading

The French Revolutionists, 6-2127

French Art after the Revolution, 6-2077

The Literature of France, 18-6711

Les Misérables, 11-3861

Stories

The Boy Whom France Forgot, 1-150

The Last Class, 19-7220

How the French Reached Moscow, 7-2599

The Great Sacrifice of Marie Antoinette, 6-2009

France in Modern Times, 11-3813

Supplementary Reading

Nature Artists of France, 7-2369

French Art Goes Out of Doors, 7-2475

Modern French Art, 8-2709

The Heroes of Aviation, 17-6291

Wonder Questions

What did the fleur-de-lis mean in the history of France? 3-1115

What is the story of the Bastille? 16-5741

Where and what is the Louvre? 15-5362

Germany

The Beginnings of Germany, 11-3959

Supplementary Reading

The Story of Frederick the Great, 11-4043

Composers of Great Music, 19-6913

The Literature of Germany, 17-6265; 17-6409

The German Painters, 4-1343

Stories

Lohengrin, 8-2957

Undine, 11-4141

Legends and Tales of the Rhine, 18-6503

The Adventures of Baron Munchausen, 4-1421

Germany as It Is, 12-4161

Supplementary Reading

Von Richthofen, 17-6293

Italy

Italy and Its Story, 12-4407

For Ancient History see Rome, page 7589

Supplementary Reading

The Builders of Florence, 5-1735

The Wonder Men of Florence, 2-691

Venice Rises and Italy Wanes, 3-1103

Raphael and His Time, 3-957

Leonardo and Michelangelo, 3-823

Italy's Immortals, 13-4603

Sculpture.

Architecture in Christian Times, 16-5715

The Renaissance in Italy, 17-6297

Architecture.

The Literature of Italy, 17-6149

Composers of Great Music, 19-6913

Columbus, 1-86

Savonarola, 13-4868

Garibaldi, 13-4588

Mazzini, 13-4588

Stories

The Brave Cardinal of Milan, 10-3466

Antonio's Wonderful Lion, 5-1689

Italy as It Is, 13-4565

Story

Major Baracca, Italian Ace, 17-6293

Russia

Russia and Its Story, 16-5691

Supplementary Reading

The Literature of Russia, 19-6905

Stories

The Girl Who Saw the Tsar, 3-890

The Bold Hero of the Mountains, 15-5378

Russia as It Is, 16-5847



Other European Nations

Austria's Rise and Fall, 17-6191

Supplementary Reading

Grillparzer, 17-6409

Switzerland, 16-5997

Supplementary Reading

Among the Snow-capped Alps, 17-6083

Andreas Hofer, 13-4588

Stories

The Story of William Tell, 19-7217

The Swiss Guards Who Did Their Duty, 3-888

Wonder Questions

How did the Red Cross Society get its emblem? 18-6557

Belgium and Her People, 15-5495

The Story of the Netherlands, 15-5555

Supplementary Reading

The Artists of Flanders, 4-1221

The Dutch and the Flemings, 5-1585

Rembrandt, 5-1709

The Golden Years in Europe, 17-6161

How Grotius Left the Castle, 11-3805

The Leak in the Dyke, 5-1777

Wonder Question

What are the Low Countries? 17-6288

Scandinavia, 15-5291

Supplementary Reading

The Literature of Scandinavia, 19-7009

Scandinavian Art, 13-4858

Stories

A School Examination, 13-4753

Iduna and the Golden Apples, 15-5328

The Story of the Days, 12-4199

Olaf of Orchard Farm, 12-4301

The Story of Spain, 14-5039

Supplementary Reading

The Literature of Spain, 19-7125

The Eastern Builders, 15-5465

Saracenic architecture.

Spaniards and Their Pictures, 4-1495

Ignatius de Loyola, 13-4869

Stories

The Adventures of Don Quixote, 5-1629

Three Nights in the Enchanted Castle, 11-3984

The Maid of Saragossa, 14-5119

The Story of Portugal, 14-5183

Supplementary Reading

Vasco da Gama, 1-89

Magellan, 1-90

A Prince Who Gave Up His Freedom, 4-1257

The Literature of Portugal, 19-7130

Poland and Its People, 13-4679

The Story of Hungary, Czecho-Slovakia and Jugo-Slavia, 17-6339

Supplementary Reading

Louis Kossuth, 13-4590

The New Map of Europe, 18-6457

Greece, Rumania and Bulgaria To-day, 14-4917

For Ancient History see Greece, page 7588

The Rise and Fall of Turkey, 13-4797

Supplementary Reading

Mohammed, 9-3097

A Great Light Shines, 2-575

Byzantine art.

Architecture in Christian Times, 16-5717

Byzantine.

Asia and Africa

The Heart of Asia, 18-6583

Arab-Asia, 18-6669

Supplementary Reading

The Peoples of the Desert, 18-6735

Arabic Literature, 15-5463

Arabic Architecture, 15-5465

How Africa Has Been Divided, 18-6803

Supplementary Reading

The Explorers of Africa, 2-465

The Arab Patriot of Algeria, 4-1255

Wonder Question

What is known as the Great Rift Valley? 2-584



The Jewish Race

The Scattered Nation, 19-7155

Supplementary Reading

The Literature of the Hebrew Race, 15-5464

The Burial of Moses, 14-5237

Stories

Stories from the Talmud, 9-3082; 18-6480

The Wonderful Friends, 19-7001



Civics and Economics

How the United States Is Governed, 5-1787

Compare How Canada Is Governed, 5-1833

Text of the Declaration of Independence, 20-7554

Text of the Constitution of the United States, 20-7563

Government and Taxes, 13-4553

Law, the Power Supreme, 13-4811

Laws We Should Know, 14-4913

Wealth, 14-5243

How Wealth Is Created, 15-5357

Foreign Trade, 15-5589

Money, 16-5679

Value, Supply and Demand, 16-5933

Distribution of Wealth, 17-6091

Spending and Saving, 17-6359

Co-operation, 18-6485

Ourselves and the Nation, 19-6875

Supplementary Reading

The Story of the Flag, 19-7181

The Young Citizen and the Flag, 19-7185

The Etiquette of the Flag, 19-7187

The Making of the Flag, 19-7188

The Revolution, 4-1157

Building the New Nation, 5-1695

Five Famous Presidents, 3-1039

More Famous Presidents, 19-7193

Some American Statesmen, 10-3487

Washington, the Capital City, 5-1533



NATURE STUDY



Plant Life

Plant Life in General

How Life Goes Round and Round, 1-117

The First Living Things, 1-219

A Plant's Struggle for Life, 1-329

Birth, Life and Death of a Plant, 2-503

How Plants Work for Their Living, 2-613

How Plants Move and Feel, 2-743

Plants and Their Ancestors, 3-881

Flowers and Fruits, 3-1013

The Flower's Wonderful Seed-box, 3-1083

Plants in Their Homes, 4-1275

How Plants Came to Be, 4-1387

What Man Can Do with a Plant, 4-1469

How Plants Serve Mankind, 5-1623

Supplementary Reading

How a Plant Melts Its Way through Ice, 2-459

Wonder Questions

Can one plant produce thousands of seeds in a single season?
13-4826

Does a plant go to sleep? 2-685

Does electricity affect the growth of plants? 7-2609

How can a plant grow on a bare wall? 7-2611

Can any plant grow under ice? 2-458

How does the seed make the colors of a plant? 14-5087

- Is a leaf of a plant waterproof? 7-2360
Where do plants get their salts from? 16-5740
Why are some plants poisonous? 14-5084
Will a seed grow after thousands of years? 8-2718
Why does manure make a plant grow faster? 10-3581
Why is seaweed used as a fertilizer? 2-587
Is the knob on seaweed filled with air? 4-1233
How does seaweed tell us what the weather is going to be? 8-2718
Should we have plants in a sick-room? 6-2124
Are there flowering plants in the Antarctic? 17-6284

Trees and Shrubs

- The Life of a Tree, 11-4093**
Some Important Timber Trees, 12-4245
The Beauty Trees, 12-4381
American Trees in Summer, 12-4507
American Trees in Winter, 13-4635
Striking North American Shrubs, 13-4775

Supplementary Reading

- The Life Story of the Mistletoe, 8-2870**
The Marvelous Power of a Growing Tree, 3-874

Wonder Questions

- What makes the roots of a tree grow downward? 3-878
Why does a tree grow upward? 1-78
Why does a tree grow straight, as a rule? 16-5744
Why do the branches of trees grow sideways? 5-1607
Why do trees have coats of tough bark? 16-5962
Why do some trees flower and others not? 8-2720
Why do trees not die in winter like flowers? 10-3580
Why does a tree stop growing? 9-3356
Why have leaves so many different shapes? 4-1231
What happens when a leaf falls from a tree? 13-4595
Why do the leaves of the aspen always shake? 15-5366
What is the growth found on many oak trees? 10-3580
Is mistletoe harmful to the tree on which it grows? 8-2872
What is meant by grafting? 16-5959
Can trees receive a wireless? 3-980
What are the Cedars of Lebanon? 15-5361

Grasses, Including Cereals, and Ferns

- The Wonderful Story of Wheat, 5-1755**

Supplementary Reading

- What Man Can Do with a Plant, 4-1469**
The Great Cereals, 5-1851

- The Great Grass Family, 10-3519
- The Splendor of the Grass, 10-3647
- The Flowerless Plants, 10-3721

Wonder Questions

- In what way does a fern grow? 4-1232
- What is ordinary or field grass made of? 14-4952

Fruits and Nuts

- The Most Important Fruits, 6-2057
- Figs and Dates, 6-2157
- The Natural History of a Nut, 6-2275
- Wild Fruits of the Countryside, 11-4019

Wonder Questions

- What is the difference between a fruit and a vegetable? 18-6693
- Where does an apple come from? 11-3975
- How does the stone get into the plum? 3-978
- How does the milk get into the coconut? 16-5846
- Why do oranges not grow in Canada? 15-5365
- Where is there a monument to an apple? 11-4133

Other Plants and Vegetables

- The Forage Plants, 7-2409
- Plants of the Breakfast Table, 7-2531
- The Useful Vegetables, 7-2613
- Plants That Clothe Us, 8-2783
- The Medicine Plants, 8-2909
- The Spice Plants, 8-2991
- Plants Useful in Industry, 9-3151
- Mushrooms, Edible and Poisonous, 11-3905

Wonder Question

- What makes a fairy ring? 4-1356

- Weeds That Creep over the Earth, 9-3391
- Queer Plants, 9-3261

Wonder Questions

- Why is it good to boil potatoes in their jackets? 8-2872
- Why does a potato not rot under the earth? 18-6554
- Why does an onion make our eyes water? 3-1114

Flowers

- The Families of Plants, 13-4871
- Plants of Two Worlds, 14-4973

The Flowers of the Seaside, 14-5157
Roadside Plants and Weeds, 15-5387
Flowers of Rocky Places, 15-5601
The Flowers of the Marshes, 16-5727
The Flowers of the Stream, 16-5871
Flowers of the Poets, 17-6123
Flowers of the East, 17-6273; 18-6567
Flowers of the Middle West, 18-6655
Flowers of the Pacific Coast, 19-6927
Wild Flowers of the South, 19-7085
Flowers of the Garden, 19-7169

Wonder Questions

How do daisies go to sleep? 2-684
Where does a flower get its smell from? 10-3734
Why are some flowers sweeter at night? 19-7246
Why should we have state or national flowers? 17-6180



Animal Life

Nature's Wonderful Family, 1-91

The great beasts which roamed the wilds and inhabited the waters before the age of man.

Supplementary Reading

Animals That Never Were, 1-353

The unicorn, dragon, sphinx, gorgon, chimera, kraken, mermaids and mermen.

Story

St. George and the Dragon, 1-54

Mammals

Animals Most Like Men, 1-207

Animals that are nearest in likeness to ourselves; gorilla, chimpanzee, baboon, mandrill, lemur, marmoset, and so on.

Bats and Their Friends, 1-315

Wonder Question

Why do bats hide themselves when the sun shines? 7-2610

Big Cats and Little Cats, 2-493

The lions, tigers, and wild and domestic cats.

Stories

Dick Whittington and His Cat, 2-758

Puss in Boots, 10-3441

Antonio's Wonderful Lion, 5-1689

Androcles and the Lion, 12-4488

Wonder Questions

Do cats and dogs ever cry? 17-6179

What happens when a cat purrs? 18-6694

Why does a cat always fall on its feet? 8-2719

Why has a tiger stripes? 5-1751

The Wild Dogs, 2-597

Stories

The Adventures of Reynard the Fox, 8-2965

The Fox without a Tail, 12-4487

The Friendly Dogs, 2-711

Stories

The Dog That Remembered Odysseus, 1-146

Gelert, the Faithful Dog, 5-1693

The Brave Little Dog of the Wood, 9-3079

Dogs Who Have Done Their Bit, 16-5735

Wonder Question

Why does a dog turn round and round before it lies down? 4-1231

The Bears and Their Cousins, 3-865

Story

The Three Bears, 16-5825

The Great Sea Hunters, 3-997

The eared seals, walruses and true seals.

Gnawers and Burrowers, 3-1127

The great family of rodents with their distinguishing incisor teeth.

The Great Cattle Family, 4-1259

Wonder Question

How does a cow make its milk? 4-1452

The Sheep and Goats, 4-1369

The Swift Runners, 4-1441

The antelope, or deer, tribe, which has specialized in speed to avoid the carnivores.

The Camels, 5-1595

Pigs and Hippopotamuses, 5-1717

Story

The Three Little Pigs, 1-145

The Tapir and the Rhinoceros, 5-1825

The Horse Family, 6-2011

Story

Black Diamond, 15-5326

Wonder Questions

Do a horse's eyes magnify? 17-6178

Why does a horse wear blinkers? 9-3356

Why does a horse need to wear shoes? 15-5366

How is a horse measured? 6-2252

How can a donkey eat a thistle? 6-2124

The Hyrax and the Elephant, 6-2139

Wonder Question

Has an elephant a bone in its trunk? 7-2361

The Whales and Their Cousins, 6-2213

Stories

Destruction of a Ship by a Whale, 4-1189

Moby Dick, 15-5401

Living Fossils, 7-2393

Armadillos, sloths, pangolins and ant-bears.

The Kangaroos and Their Kin, 7-2501

Animals That Lay Eggs, 7-2591

The group of Monotremata, as these mammals which lay eggs are called, includes the Platypus of Australia and the Echidna of Australasia.

Wonder Questions

Why can baby animals walk so soon? 17-6173

Are all animals blind at birth? 18-6558

How long do animals live? 1-185

Can any animal live for years without food? 2-457

Do animals talk to one another? 3-978

Do animals think? 18-6557

Do animals have dreams? 12-4398

Which animals are the most intelligent? 8-2716

Do animals feel as much pain as we do? 6-2251

How are animals made to perform? 8-2715

Birds

Our Feathered Friends, 8-2757

Wonder Questions

How does a bird know how to build its nest? 14-5220

Why does a bird forsake its nest? 17-6175

Why have the eggs of birds so many colors? 3-1116

Why do birds cast their feathers? 17-6290

Does a bird always sing the same song? 5-1606

- What does a bird sing about? 10-3579
Why does a flying bird not fall to the ground? 7-2611
What bird has the longest wings? 8-2720
Was there ever a living bird called the phoenix? 18-6558

The Crow and His Family, 8-2889

Starlings, Finches and Buntings, 8-2967

The Larks and Their Friends, 9-3133

Warblers, Babblers and Chatterers, 9-3277

Peckers, Humming-birds and Hornbills, 9-3365

The Cuckoos, 10-3497

The Parrots and the Owls, 10-3613

Story

The Cat and the Parrot, 11-3837

Wonder Question

Why does an owl come out by night? 3-981

The Day Birds of Prey, 10-3753

Ducks and Geese, 11-3881

Stories

The Geese Who Kept Guard of Rome, 11-3982

The Ugly Duckling, 17-6096

Wonder Question

Why does a duck keep dry in water? 10-3580

Hérons, Storks and Cranes, 11-4005

Sea Birds and Their Inland Kin, 11-4121

Wonder Question

Where is there a monument to the sea-gull? 17-6288

The Pigeons and the Doves, 12-4283

Story

Cher Ami, 7-2319

The Pheasants and Their Allies, 12-4363

Our Domestic Poultry, 12-4491

Wonder Question

Does a hen know that chickens will come out of her eggs? 12-4281

Birds That Cannot Fly, 13-4655

Wonder Question

Why does an ostrich hide its head? 17-6289

Land Birds of the Northern Province, 13-4759; 13-4829

Birds of the Southern Province, 14-5017

Birds of the West, 14-5133

Reptiles

The Marvelous Reptile Family, 14-5227

The Extraordinary Snakes, 15-5409

Story

A Battle with Snakes, 4-1530

Wonder Questions

What makes the poison in a snake's fang? 16-5842

Can poisonous snakes bite without poisoning? 5-1810

Amphibians

The Wonderful Amphibians, 15-5453

Wonder Questions

Can a frog live inside a stone? 4-1231

Where does the tadpole's tail go? 1-74

Has there ever been an actual shower of frogs? 10-3581

Fish

Life in the Waters, 15-5539

Wonder Questions

Why cannot fish live on land? 11-3841

Why do fish die in a jar of water? 10-3732

Can a fish see and hear? 11-3841

Does a fish feel? 1-187

How fast is a fish able to swim? 5-1606

Why do fishes not drown? 8-2716

Why cannot fish live in the Dead Sea? 17-6180

Fishes of River and Lake, 15-5629

Wonder Question

How does a fish live in a frozen pond? 11-3976

Fishes of Shallow Seas, 16-5773

Fishes of the Deep Sea, 16-5893

Crustaceans

Crabs, Lobsters and Their Kin, 16-5949

Wonder Question

Why does a lobster turn red in boiling water? 16-5846

Insects

Little Many-Legs, 16-6011

Wonder Question

Can a spider's web be made into cloth? 16-5743

The Mighty Insect, 17-6063

Bees and Wasps, 17-6221

Wonder Questions

Why does a bee sting? 11-3843

Why does a bee hum? 3-1116

Do flowers get more honey after a bee's visit? 4-1233

Why does a wasp's poison not hurt the wasp? 3-877

The Wonderful Ant, 17-6349

Mosquitoes and Flies, 17-6417

Wonder Questions

How does a fly walk on the ceiling? 2-457

Can a fly hear? 11-3978

Can a fly see all ways at once? 11-4134

Where do flies go in the winter? 12-4399

Is a fly comparatively stronger than a man? 16-5844

Why is the fly found in amber? 13-4824

Butterflies and Moths, 18-6525

Supplementary Reading

The Life Story of the Clothes Moth, 16-5745

Wonder Questions

Does camphor keep moths away? 16-5958

Why is a moth's tongue so long? 5-1609

The Great Beetle Family, 18-6623

Wonder Questions

Why do we fear a beetle? 1-310

Why does a glow-worm glow? 11-3979

Insect Friends and Foes, 18-6721

Annelids

The Wonderful Earthworm, 19-7143

Wonder Question

How can a worm live cut in two? 1-187

Marine Life

The Great Mollusc Family, 19-6883

Wonder Questions

How does a mussel build its shell? 12-4278

What has happened to the snails from all the empty shells? 14-5085

Where do all the shells come from? 15-5362

Queer and Lowly Creatures, 19-7059

This includes the sponge, jellyfish, sea-anemone, and so on.

Wonder Questions

Can a sea-anemone eat a creature bigger than itself? 5-1753

How long does a sea-anemone live? 5-1753



PHYSIOLOGY, HYGIENE AND PSYCHOLOGY



Physiology and Hygiene

Animals with Backbones, 1-255

The Tiniest Living Things, 2-437

The first chapter on microbes.

Our Unseen Friends and Foes, 2-557

A second chapter on microbes.

Wonder Question

Why are there some illnesses that we cannot get twice? 2-461

The Very Seat of Life, 2-661

The living cell from which life starts.

The Red Cells of the Blood, 3-803

A description of the red corpuscles.

The White Cells of the Blood, 3-935

The white corpuscles and their function.

Wonder Questions

Is our blood cold when we feel cold? 7-2485

What happens when our foot goes to sleep? 17-6289

Why does my face turn white when I am frightened? 16-5958

The Heart and What It Does, 4-1209

Wonder Question

What makes the heart beat? 5-1752

Life and the Lungs, 4-1325

Wonder Questions

Why do we get out of breath when we run? 7-2610

Why do we get headache in a crowded room? 8-2873

Why do we not see our breath on a warm day? 16-5842

Why cannot we breathe under water? 14-5221

Is night air bad for us? 12-4278

How is it that miners are not killed by bad air? 2-460

Why is tight clothing bad for us? 8-3013

The Covering of Our Bodies, 4-1415

Wonder Questions

How does moisture penetrate our skin? 14-5224

What are freckles? 4-1450

Why are some people dark and some fair? 19-7246

Why is the negro's skin black? 7-2609

Why do some people lose their hair? 13-4827

Why does hair grow after the body has stopped growing? 7-2486

Why does it not hurt when we cut our hair? 8-2873

How Our Bodies Are Built Up, 5-1559

A chapter on bones.

The Head and the Limbs, 5-1673

Wonder Questions

Could we walk without our toes? 1-74

Why are all our fingers not the same length? 7-2485

The Muscles and Their Masters, 5-1803

Wonder Question

What causes cramp? 12-4278

The Mouth and the Teeth, 6-1929

Wonder Questions

What is to blame when a tooth aches? 16-5962

Why cannot human beings grow a third tooth? 4-1452

The Forest of Nerves within Us, 8-2837

The Mystery of the Brain, 8-2943

The Parts of the Brain, 9-3059

Wonder Questions

Can a brain ever get filled up? 16-5957

Does the brain need food? 5-1811

Does the shape of the brain mean anything? 4-1355

Is phrenology really an exact science? 4-1354

Our Wonderful Glands, 9-3221

The Marvel of Hearing, 9-3305

Wonder Questions

Why are blind people so quick at hearing? 6-2125

Why can we hear better when we shut our eyes? 12-4279

Why do we hear better on water than on land? 3-980

Our Wonderful Canals, 10-3425

The semicircular canals of the ear which regulate the balancing of our bodies.

The Voice-Box and Its Uses, 10-3555

Wonder Questions

Why are some apparently healthy people dumb? 14-5222

What is Adam's apple and where did the name come from? 16-5961

Why do we get hoarse when we have a cold? 4-1354

Why does a boy's voice break and not a girl's? 4-1230

Why does my voice seem louder if I put my hands over my ears?
18-6554

Why does a lump rise in my throat when I cry? 6-2123

The Story of the Eye, 10-3683

The Eye's Wonderful Curtain, 11-3801

Wonder Questions

Are earrings good for the eyes? 1-187

Are pictures of the things we see printed on the eye? 16-5960

Can country people see better than city people? 12-4398

Can we see everything with our eyes? 10-3730

Do we see a thing as soon as we look at it? 1-312

What are our eyebrows for? 11-3840

How can we see with our eyes shut? 7-2359

Why have we two eyes? 9-3100

How far can we see? 19-7245

What makes the pupil of our eye grow larger? 14-5218

Why cannot I see in the dark? 5-1807

Why do our tears taste of salt? 2-688

Why do we see lights when we get a blow on the eye? 13-4596

What is a cataract of the eye? 12-4505

Smell and Taste, 11-3955

Wonder Questions on Physiology

Why do we sleep? 17-6175

What happens when we get tired? 12-4503

What makes me wake up in the morning? 1-78

Do we always wake when we have had enough sleep? 5-1609

Are we taller in the morning than at night? 10-3732

Why must a baby have more sleep than a grown-up? 2-687

Why must a baby learn to walk? 3-877

Do we grow as much one year as another? 14-5085

Why do we stop growing? 3-978

Why are some things not good for children? 8-2873

Why does everyone grow old? 7-2362

Why is granny's hair gray? 17-6290

Did people long ago live longer than people to-day? 14-5218

- Are we healthier than our ancestors? 12-4280
Is the country more healthful than the city? 10-3579
Do diseases ever disappear? 14-5086
Are we creating many new diseases? 9-3355
Why are not all diseases infectious? 8-2872
Why does vaccination save us from smallpox? 7-2485
What is pain and why does it hurt? 11-3840
Why do we faint at very sudden news? 10-3731
Why do smelling-salts revive us? 10-3730
Where does a cold come from and where does it go? 7-2610
Why do we lose the sense of smell when we have a cold? 5-1809
How do people catch colds from one another? 10-3580
Why is it dangerous to sleep in a damp bed? 4-1230
Where does the warmth in our bodies come from? 14-5218
Why do our faces keep warm without clothes? 8-2720
Why do our hands become warm after playing with snow? 6-2124
Why does a finger lose its feeling when it is numb? 2-460
Why do we have finger-nails? 14-5220
Why do we not laugh when we tickle ourselves? 11-3978
What causes chilblains? 9-3355
What is a corn? 1-188
Why do some people get headaches before a thunderstorm? 5-1751
Is it harmful to drink rain water? 1-310
What makes us sneeze? 17-6176
Why do we swing our arms when we walk? 5-1808
Why is our right hand stronger than our left? 12-4280
Why cannot we grasp a bar tightly when we first wake up? 4-1356
Can we break ourselves of bad habits? 3-1116
Is there a reason for everything that happens? 16-5740
Is the population of the world still growing? 5-1606
Is it true that children will rule the world? 14-5085
Do any people have blue blood? 11-4135

How to Eat, 6-2083

Wonder Question

- What makes us say we are hungry? 5-1808

Food and Its Uses, 6-2185

Wonder Questions

- Why do we not growl like an animal when we are hungry? 14-5086
Why do we cook our food? 4-1450
Why is it good to boil potatoes in their jackets? 8-2872
Is cocoa good for us? 15-5366
Why is strong tea bad for us? 5-1607
Why do tea and coffee keep us awake? 4-1451
Why is sugar sweet? 1-310
Why does boiling make an egg hard? 13-4827

What is a calorie? 18-6694

What is meant by a poison? 4-1232

Who started the idea of cold storage? 5-1607

Will the world's food supply ever run short? 14-5225

Why is the bottom of a can holding food ridged? 7-2484

Milk, Nature's Wonderful Food, 7-2323

Wonder Questions

What causes cream to form on milk? 4-1354

Why does a crust form on boiled milk? 9-3355

Why does milk turn sour? 17-6174

The Bread by Which We Live, 7-2423

Wonder Questions

Why does yeast make bread rise? 18-6693

Why is new bread more indigestible than old? 7-2486

Meat as a Food, 7-2567

Alcohol, the Enemy of Life, 8-2681



Psychology

The Real Master of the Body, 11-4065

All Sorts of Minds, 12-4181

The Emotions of the Mind, 12-4441

Wonder Questions

Where does a thought come from? 16-5839

Can we think without words? 10-3578

Can we think about things that do not interest us? 1-187

Why do we forget some things and remember others? 8-2720

Why do we forget what happened when we were babies? 16-5740

Why do we worry? 17-6173

Where am I in my sleep? 5-1749

Why do I dream? 9-3099

How do we know we have dreamed when we wake up? 6-2123

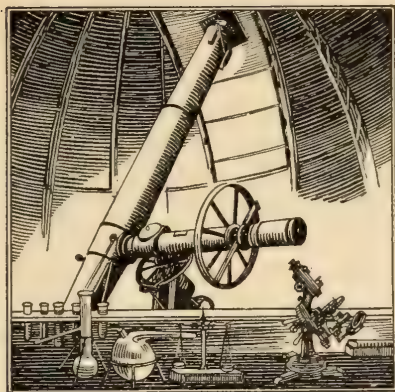
Why do I laugh and cry? 1-73

Why is yawning infectious? 14-5222

Is it good to have to work? 17-6175

Why are we never satisfied? 2-686

Why do we jump when we get a shock? 7-2612



GENERAL SCIENCE



Astronomy

- The Big Ball We Live On, 1-17
- How the Earth Was Made, 1-141
- Fragments of the Solar System, 10-3665
- The Immensity of the Universe, 9-3033
- The Inner Planets, 9-3289
- The Outer Planets, 10-3409
- The Stars in Their Brightness, 11-3783
- What We Know about the Stars, 11-3921
- The Sun and Its Power, 9-3171
- The Earth and the Moon, 10-3535
- Three Ways the Earth Moves, 1-235
- What Is Happening in the Sky, 11-4037
- The First Astronomers, 1-201
- Men Who Mapped the Skies, 1-279
- Making a Simple Telescope, 12-4265

Supplementary Reading

- The paths of all the eclipses of the sun from now to 1950, 16-5843

Wonder Questions

- Could we reach another world? 4-1353
- Does change go on in other worlds? 18-6691
- Are there people on the moon? 16-5846
- Does the moon pull the sea? 2-583
- Is there a man in the moon? 4-1449
- Why does the moon grow brighter as the sun sets? 18-6554

- Has each planet a law of gravitation? 1-187
How can we tell a star from a planet? 5-1750
How many stars are there in the sky? 16-5960
How many stars can we see without using a telescope? 14-5225
Is a falling star one we see in the sky? 18-6556
What becomes of the stars in the daytime? 13-4828
What holds the stars in their places? 11-3843
What is meant by the zodiac? 10-3730
Why are there more stars some nights than others? 11-3977
Why do the stars twinkle? 18-6550
Why do we not see the stars by day and by night? 2-686
Does the sun ever cross the northern sky? 14-5222
Does the sun move or stand still? 1-312
How can we foretell an eclipse of the sun? 16-5844
How does the sun make a rainbow? 13-4828
What are sun-spots? 18-6694
What is the sun made of? 4-1231
Where does the oxygen in the sun come from? 14-5225
Will the sun ever be as cold as the earth? 14-5220
What is a day? 14-5217
Has the day always been divided into twenty-four equal hours?
11-4132
How can we tell the number of days in another world's year?
11-3977
Is there water anywhere except in our world? 14-5222



Geology

- How the Earth Was Made, 1-141
Inside the Wonderful Ball, 2-385
How Fire and Water Made the World, 2-525
Foundations in America, 3-773
The World of the Cambrian Period, 3-905
The World in the Silurian Period, 3-1031
The World in the Devonian Period, 4-1175
The Carboniferous Period, 4-1295
The Triassic Period, 4-1401
The Jurassic Period, 5-1545
The Cretaceous Period, 5-1659
The Eocene Period, 5-1783
The Pliocene and the Pleistocene, 6-1925
The Stony Book of Nature, 6-2069

Supplementary Reading

Some Men Who Loved Nature, 19-7051

Making a Collection of Rocks, 13-4623

The American Museum of Natural History, 18-6613

Wonder Questions

Does a rock breathe? 9-3102

Is a stone alive? 17-6174

Where do the stones we see lying about come from? 7-2611

How did all the metals get into the earth? 19-7246

Why do mountains get no higher though snow falls on them?
6-2250



Physical Geography

The Face of the Earth, 6-2169

Mountains and Glaciers, 7-2313

How the Sun and Wind Made the Hills, 2-629

The Rivers and the Seas, 7-2537

What Climate Means to Us, 8-2663

Why the Seasons Come and Go, 8-2791

The Rain That Raineth Every Day, 8-2921

The Sun and Its Power, 9-3171

The Movement of Things, 13-4665

The Pull of the Earth, 14-5177

Supplementary Reading

Forests, Woods and Deserts, 7-2415

The Dominion of Canada, 1-105

How to Study the Weather, 10-3625

An Easily Made Weather-vane, 19-6959

The North Pole Men, 13-4707

The South Pole Men, 14-5089

See also **Mining Engineering**, page 7631; **Geography**, pages 7583-84

Wonder Questions

Does the Equator go round faster than the Poles? 14-5222

Is it a sign of rain when the smoke blows down the chimney?
12-4279

What are the horse latitudes mentioned in sea stories? 7-2486

What causes a fog? 17-6285

What is a delta and how is it made? 5-1607

What is the cause of a quicksand? 9-3102

What is the difference between snow and hail? 18-6556

What makes a fairy ring? 4-1356

- What makes a whirlpool? 17-6284
- Where does all the dust go? 5-1809
- Where does the fog go when it clears up suddenly? 3-981
- Where does the rain go? 6-2249
- Why did the sand get on the seashore? 17-6178
- How big is the Gulf Stream and how fast does it flow? 13-4826
- What makes the currents which flow through the sea? 16-5960
- Are new clouds always being made? 11-4134
- Can gravitation pull a cloud down? 16-5746
- Does a cloud weigh anything? 10-3580
- How do clouds stop sunlight if they are pure water? 4-1453
- How does a soft cloud make a noise when it thunders? 3-978
- How is it that clouds have regular shapes? 14-5087
- Where are the clouds when the sky is quite clear? 13-4595
- Which side of the clouds is the thunder on? 12-4280
- What is a waterspout? 5-1809
- What makes the white mist at night in the hot weather? 12-4504
- How do we know the height of a mountain? 11-3840
- Can fresh water be found in the sea? 2-584
- How deep is the sea? 3-875
- How do we know what is at the bottom of the sea? 12-4399
- How much water is there in the sea? 10-3578
- Is every seventh wave a bigger one? 5-1811
- What are the largest fresh-water lakes in the world? 7-2484
- What parts of the ocean are known as the doldrums? 7-2487
- Where does the water go at low tide? 11-3843
- Why does the sea never seem to be absolutely still? 14-5220
- Why does the tide come in and go out? 10-3734
- What is meant by a time zone? 16-5845
- Where does the day begin? 16-5845
- Who arranged the days? 11-4131
- Who first thought of standard time? 16-5842
- What is a day? 14-5217
- What is Greenwich Time? 5-1808
- Why is it dark at night? 1-78
- What do we mean by the trade winds? 3-878
- What is a cloudburst? 18-6692
- What is a hurricane? 18-6692
- What is a whirlwind? 18-6692
- What is the wind like on a mountain-top? 16-5746
- Why are some winds warm and some cold? 18-6692
- Why do the winds blow? 18-6691

Physics

Properties of Matter

How Things Are Measured, 14-4901

The Movement of Things, 13-4665

The Pressure of the Air, 15-5285

The Size and Weight of Things, 14-5035

Supplementary Reading

A Fairy-fountain Experiment, 2-627

A Floral Barometer, 3-1028

Foucault's Pendulum, 8-3017

How to Feel the Pressure of the Air, 18-6784

The Magic of a Glass of Water, 2-622

A Box That Makes Smoke Rings, 13-4846

How to Make Fancy Kites, 16-5770

A Little Box That Makes a Whirlwind, 4-1398

Making a Toy to Measure the Wind, 4-1391

Making a Wonderful Top, 10-3509

Simple Kites and How to Make Them, 3-900

Wonder Questions

Do the people at the Poles spin round like a top? 6-2252

Do we get a pound of ice from a pound of water? 14-5086

How does a siphon work? 15-5365

How does a soap-bubble hold together? 3-979

What makes a soap-bubble rise and fall? 3-980

How does a spirit level work? 18-6553

If a feather is lighter than air, why does it ever settle? 7-2362

If we swing a rope, why does it go on swinging? 10-3734

Is smell a wave in the air? 5-1753

What becomes of the smoke we see? 2-460

Why does smoke go up the chimney? 8-3015

What do we mean by stable equilibrium? 7-2361

What do we mean when we speak of size? 2-463

What keeps a shell from falling to the ground? 2-686

What makes the ball swerve in a bowling game? 18-6552

What makes a lead pencil write? 9-3354

When I walk in a moving train do I move faster than the train?
5-1811

Why are we thrown forward when the train stops suddenly?
12-4505

Why do we find ice slippery? 7-2362

Why does a ball bounce? 3-977

Why does blotting-paper absorb ink? 10-3578

Why does a boomerang come back? 14-5081

- Why does a chimney smoke? 8-3014
Why does a falling object turn around? 13-4827
Why does glue hold wood together? 2-463
Why does an iceberg float? 4-1355
Why does ink stain, while water does not? 6-2252
Why does quicksilver roll up into balls? 2-688
Why does quicksilver run away when we touch it? 3-879
Why does a stick float? 17-6178
Why does wood warp in damp weather? 14-5085
Why is it difficult to write on glass? 11-4133
Why is a raindrop round? 11-3843
Why is walking easier on a rough surface than on a smooth one?
6-2124
Why must a diver have lead on his boots? 16-5842
Why will a slate pencil write on slate but not on paper? 4-1356
Why does a flying bird not fall to the ground? 7-2611
Why cannot we fly in the air as we swim in the water? 16-5961
Does a piece of iron get tired? 10-3729
How can thin iron rods carry a suspension bridge? 12-4280
Why do metals let light through when beaten thin? 5-1750
Why does iron float on mercury and not on water? 16-5845
Why is iron roofing usually corrugated? 6-2124
Can we make the tides work for us? 18-6558
Why has not smoke a force like steam? 6-2250
How does oil make a rough sea calm? 1-188
What makes the water ripple when we throw a stone in it? 14-5221
Why does the stream run faster in the middle? 12-4399
Why does water find its own level? 4-1229
Why is a running stream purer than a stagnant pool? 14-5084
Why is the surface of water always level? 16-5844
Does a plumb line always hang straight? 2-587
What do scientists mean by the term "millibar"? 14-4952

Magnetism and Electricity

The Pull of the Earth, 14-5177

What Gravitation Means, 13-4795

For Electricity see *Electrical Engineering*, page 7632

Supplementary Reading

How to Read the Mariner's Compass, 16-5984

How Magnetism Marks the Miles, 1-76

Wonder Questions

- Do magnets ever lose their magnetic power? 10-3581
Why is a needle no heavier when magnetized? 11-3976
Where does the lightning go when it reaches the ground? 16-5744
Why does lightning strike some things and not others? 6-2125

Light

Light and What Makes It, 16-5807

Where Color Comes From, 17-6079

Supplementary Reading

The Story of the Microscope, 13-4669

Where Gaslight Comes From, 2-635

The Men Who Gave Us Light, 3-989

The Story of the Eye, 10-3683

Photography without a Camera, 8-2739

How to See through a Brick, 12-4377

How a Magnifying Glass Makes Things Bigger, 2-462

Seeing What Is Not There, 5-1806

Wonder Questions

Can we always believe our own eyes? 8-2746

How can we judge real or pictured distance? 3-1116

How are the cartoons made for the films? 2-456

When we are looking at a rainbow can people see the other side?
6-2251

Why cannot we see very small things with our naked eye? 14-4952

Why do houses seem crooked when we look across a fire? 5-1752

Why do some faces in pictures seem to follow us? 8-2718

Why do things seem blurred when seen from a height? 7-2612

Why do two sides of a road seem to meet in the distance? 14-5222

Why does a face in a mirror seem crooked? 17-6285

Why does anything go yellow with age? 14-5085

Why is foam white? 17-6176

Do a horse's eyes magnify? 17-6178

Why can't I see in the dark? 5-1807

Have things any color at night? 8-2874

How many colors has the rainbow? 7-2486

Is there any color our eyes cannot see? 10-3579

What makes the colors of the sunset? 18-6552

What makes the fire change color? 16-5746

Why do the hills look blue at a distance? 9-3102

Why do some colors change in artificial light? 7-2360

Why, if we look at red, do we afterward see green? 2-687

Why is the sky in Italy so blue? 17-6179

Why is the snow white? 18-6694

What is a mirage? 5-1810

Do we see things in the distance or the light that comes from them?
2-458

Does a light-wave go through glass? 11-3977

Does light die away? 10-3577

Why are the shadows longer at the end of day? 4-1230

What makes flames dance in an open-grate fire? 14-5221

- Why do we see a black spot in the sky after looking at the sun?
14-4950
How does still water reflect a distant scene? 3-978
Is there any color in the sea? 11-3841
What causes the change in color of the sea? 6-2124
Why does water always seem shallower than it is? 2-688
Why does the sun fade carpets and not flowers? 4-1354

Sound

- The Behavior of a Sound, 19-6851
Music and Noise, 18-6437
The Waves of Sound, 17-6313
Wonderful, Wonderful Music, 18-6695

Supplementary Reading

- Marvel of Hearing, 9-3305
The Voice-box and Its Uses, 10-3555
A Box That Draws Voice Pictures, 17-6145
Music from Drinking Glasses, 15-5333
Musical Instruments from Old Bottles, 17-6387

Wonder Questions

- What makes an echo? 12-4504
What was the first stringed instrument? 13-4594
Why does a fog deaden sounds on the sea? 4-1451
What makes the sea roar? 9-3102
Does sound always travel at the same rate of speed? 2-457
Does sound travel in straight lines? 2-586
How can sound come into a room through a wall? 12-4279
Is it true that sound goes on forever? 12-4399
What do we mean by the length of a sound-wave? 8-3016
When we sing a note to a piano, why does it answer? 5-1750
Why can we hear a noise like waves in a seashell? 5-1608
Why do empty vessels sound more than full ones? 5-1810
Why do musical sounds come from the organ? 17-6290
Why does a noise occasionally break a window? 7-2611
Why does a popgun go pop? 13-4593
Why does a stick make a noise when swung in the air? 12-4281
Why does a trumpet make the phonograph louder? 14-5224
Why does a tuning-fork sound louder when it touches wood?
14-4952
Why does a violin string change its note when held down? 8-2719
Why does furniture make a noise at night? 9-3100
Why does the kettle sing? 11-4134
Why does the whistle change as the train comes nearer? 11-4132
What makes water gurgle when it comes out of a bottle? 11-3979
What makes the wind whistle? 11-3841

Heat

Heat and Temperature, 16-5661

Hot Things and Cold Things, 15-5423

How Heat Works for Us, 15-5569

Supplementary Reading

Master Jack Frost, 14-4905

Thermometers, 7-2648

Making a Hot-air Balloon, 10-3770

How a Plant Melts Its Way through Ice, 2-459

Wonder Questions

What is a thermos flask? 17-6174

Why does a wet plate get dry if we leave it alone? 3-981

Why is a fire pail filled with sand? 4-1452

Why is a snowflake lighter than a raindrop? 9-3101

Can anything boil when it is cold? 8-3014

Do things weigh heavier or lighter when hot or cold? 11-3977

How does salt melt snow? 12-4505

What do we mean when we speak of a calorie? 18-6694

What makes the kettle boil? 12-4277

When water is boiling why can it not be made hotter? 13-4595

Why are dark things warmer than white things? 3-877

Why are some days hotter than others? 18-6556

Why do we put a spoon in a glass before pouring in hot water?
9-3354

Why does a piece of ice make a drink colder? 13-4827

Why does a pin get hot if rubbed against a stone? 11-3840

Why does boiling water feel cold when we put our hand in it?
14-4950

Why does heat crack wood? 17-6289

Why does heat make paper curl up? 9-3356

Why does heat make things seem to quiver? 5-1751

Why does hot water clean things better than cold? 4-1355

Why does hot water crack thick glass more easily than thin?
13-4828

Why does the kettle not get red-hot when heated? 13-4594

Why does the thaw burst the water-pipes? 4-1450

Why is the fire hot? 16-5846

Why does a flame rise to a thing held above it? 11-4133

Why does a match flare up when held upside down? 14-5087

Why does a match go out when we blow it? 3-980

Why does iron feel colder than wood? 4-1451

Why does shallow water freeze first? 8-2874

Why is it that the sea does not freeze? 11-3978

Why is it hotter at the Equator than in Maine? 9-3101

Chemistry

Chemistry in the World's Life, 13-4529

How the Elements Are Built Up, 12-4289

Alcohol, the Enemy of Life, 8-2681

Transformations of Matter, 12-4403

The Wonder of Matter, 12-4155

Supplementary Reading

Conquerors of Disease, 15-5481

Some European Men of Science, 2-589

The World's Great Doctors, 8-2721

The Medicine Plants, 8-2909

The Earliest Ways of Making a Fire, 1-308

Simple Experiments

Making a Chemical Weather-glass, 12-4502

How to Test for Pure Silk, 2-621

Simple Experiments with Air and Water, 19-7083

Simple Tests for Cotton, Linen, Wool and Silk, 5-1774

How to Make Perfume from Flowers, 3-904

How to Make Soap for Mother, 1-130

How to Make Invisible Ink, 2-626

Wonder Questions

What is artificial silk made of? 13-4828

What is ordinary garden or field grass made of? 14-4952

What is the paper we use made of? 8-3016

What is the substance known as ozone? 6-2252

What is the stuff we call quicksilver? 4-1233

What is verdigris? 17-6175

Why does not oil mix with water? 11-3842

Why is a silver spoon blackened by egg? 18-6552

Does the air ever get used up? 1-312

Is impure air lighter than pure air? 18-6692

What is the air made of? 12-4504

How does a mussel build its shell? 12-4278

Why do lobsters turn red in boiling? 16-5846

How do fireworks get their colors? 13-4825

Why cannot we wash the color out of soap? 16-5846

Why does milk turn sour? 17-6174

How did man find fire? 9-3353

Why does coal burn and not a stone? 17-6285

Why does the fire go out? 11-3839

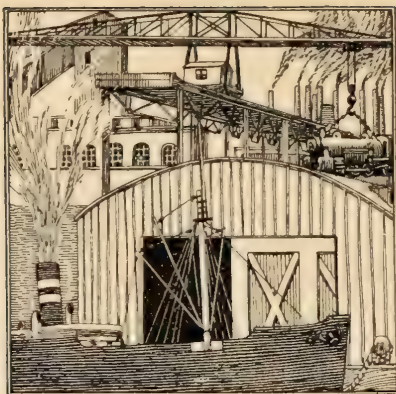
Why does oil burn more easily than some other things? 5-1751

What is meant by the term phosphorescent light? 2-586

Why does a light go out in water but flare up in gasoline? 10-3729

Chemistry

- Can a fire light itself? 14-4949
Why does a match strike? 1-307
Is iron heavier when it rusts? 10-3578
Why is it that iron does not burn away in the fire? 4-1356
How does the seed make the colors of a plant? 14-5087
Where do plants get their salts from? 16-5740
Why are some plants poisonous? 14-5084
Is there gold in the sea? 13-4594
What makes the sea taste of salt? 1-75



APPLIED SCIENCE AND INDUSTRY



Food and Its Sources

A Grain of Salt, 3-925

How Coffee Comes to Us, 6-2177

How Fish and Oysters Are Taken, 11-4051

How Flour Is Made, 8-2795

The Story in a Tea-cup, 2-761

Where Sugar Comes From, 10-3415

The World's Bread and Butter, 1-371

Bees and Wasps, 17-6221

The makers of the purest sugar.

Crabs, Lobsters and Their Kin, 16-5949

The Great Cattle Family, 4-1259

Animals that feed and clothe us.

Our Domestic Poultry, 12-4491

The Sheep and Goats, 4-1369

A Man Who Loved Plants, 15-5381

The story of Luther Burbank.

Fishes of the Deep Sea, 16-5893

Fishes of River and Lake, 15-5629

Fishes of the Shallow Seas, 16-5773

The Bread by Which We Live, 7-2423

Food and Its Uses, 6-2185

Meat as a Food, 7-2567

Figs and Dates, 6-2157

The Great Cereals, 5-1851

The Medicine Plants, 8-2909

The Most Important Fruits, 6-2057

Mushrooms, Edible and Poisonous, 11-3905

Plants of the Breakfast Table, 7-2531

The Spice Plants, 8-2991

The Useful Vegetables, 7-2613

The Wonderful Story of Wheat, 5-1755

What Man Can Do with a Plant, 4-1469

How men have improved the wheat plant; Marquis wheat bred by Dr. Saunders.

Things to Make

Delicious Coconut Candy, 10-3771

How to Eat, 6-2083

How Bread Is Made, 2-626

How Meat Products Are Used, 7-2512

How to Make Butter and Cottage Cheese, 3-896

How to Make Candies, 1-340

How to Make Candy at Home, 11-3856

How to Measure Correctly in Cooking, 1-234

How to Prepare a Dainty Tea, 9-3376

Jelly Children Can Make, 1-130

Recipes for Candy, 2-752

Simple Food Experiments: Potatoes, 3-1154

Suggestive Recipes: Potatoes, 3-904

Finding Out How Milk Is Handled, 10-3508

How to Keep Fruit Fresh, 11-4084

Ices Made without a Freezer, 11-4088

Preparing a Picnic Lunch Basket, 11-4015

Wonder Questions

What makes us hungry? 5-1808

Does the brain need food? 5-1811

Why do we cook our food? 4-1450

What is the difference between a fruit and a vegetable? 18-6693

How does the stone get into the plum? 3-978

Where does an apple come from? 11-3975

Why does a potato not rot under the earth? 18-6554

Why is it good to boil potatoes in their jackets? 8-2872

Why does an onion make our eyes water? 3-1114

Why does yeast make bread rise and biscuits bubble? 18-6693

Why is new bread more indigestible than old? 7-2486

Why is sugar sweet? 1-310

Why does sugar dissolve more quickly in hot water than in cold?
17-6176

Why does boiling make an egg hard? 13-4827

Why does a bad egg float and a good egg sink? 18-6553

Why is a silver spoon blackened by egg? 18-6552

- Who started the idea of cold storage? 5-1607
How does a cow make its supply of milk? 4-1452
What causes cream to form on milk? 4-1354
Why does boiling milk flow over the top of the saucepan? 7-2609
Why does a crust form on boiled milk? 9-3355
Why does milk turn sour? 17-6174
Why does milk turn sour in a thunderstorm? 5-1609
How does the milk get into the coconut? 16-5846
Is cocoa good for us? 15-5366
Why do tea and coffee keep us awake? 4-1451
Why is strong tea bad for us? 5-1607
Is it harmful to drink rain water? 1-310
Why does ice make a drink colder? 13-4827
Why do lobsters turn red in boiling? 16-5846
Why does mustard burn our tongue? 8-3013
Will the world's food supply ever run short? 14-5225



Clothing

- How Cotton Becomes Cloth, 14-5167
How We Get Linen, 9-3317
Nothing like Leather, 5-1549
The Story in a Pair of Shoes, 18-6441
The Wonder of a Piece of Silk, 15-5307
Canada and the Fur Trade, 12-4337
Fur-farming in Canada, 13-4693
The Covering of Our Bodies, 4-1415
Plants That Clothe Us, 8-2783

Supplementary Reading

- How to Test for Pure Silk, 2-621
Simple Tests for Cotton, Linen, Wool and Silk, 5-1774
The Right Way to Mend Things, 13-4737
How to Knit a Child's Sock, 13-4851
How to Make Indian Clothing, 9-3251
How to Make Old Clothes New, 11-3857

Wonder Questions

- What is artificial silk made of? 13-4828
Why does starch stiffen clothing? 11-3978
Why do we wear light things in summer and dark things in winter?
14-5086
Why is tight clothing bad for us? 8-3013

Important Manufactures

- Making Iron and Steel, 6-1935
A Piece of Rope, 11-3791
How China Cups and Saucers Are Made, 5-1663
How Cotton Becomes Cloth, 14-5167
How Flour Is Made, 8-2795
How Glass Is Made, 18-6745
How a Lock Is Made, 6-2021
How Matches Are Made, 19-6965
How We Get Linen, 9-3317
How We Got the Piano, 5-1795
Pulp and Paper, 7-2445
The Story in a Pair of Shoes, 18-6441
The Story of a Common Pin, 9-3041
The Story of Rubber, 4-1405
The Talking Machine, 1-261
The Wonder of a Book, 3-1053
The Wonder of a Piece of Silk, 15-5307
Wool and Its Story, 15-5575
The Tale of a Knife and Fork, 4-1305
Making Moving Pictures, 18-6593
How We Get Our Ice, 2-529

Wonder Questions

- How is a motor tire made? 1-311
How is a motor tire tested? 1-313
How do the steel studs get into a tire? 6-2123
How are the bowls made? 18-6551
What are the brown specks in china? 2-689
What is artificial silk made of? 13-4828
What is the paper we use made of? 8-3016
What is concrete used for? 17-6286
What is the secret of luminous paint? 8-3016
Why do bookmakers gild the tops of books? 18-6552



Transportation and Communication

Transportation

- A Great Ship and What It Can Do, 12-4415
Down in the Deep, Deep Sea, 12-4185
Divers and their work.

The Ship beneath the Waters, 1-197

What a submarine can do.

The Reign of Wooden Ships, 11-3909

Ships and Sailors of Our Navy, 18-6815

Conquerors of the Sea, 17-6397

Men who invented steamships, turbines, and other wonders which have made quick sea travel possible.

How to Know Sailing Ships, 11-4086

How to Understand a Ship, 14-5002

The Wonder of a Train, 2-405

Men Who Made the Railways, 5-1611

Riders on the Wind, 1-167

The airplane and its makers.

How Motor Cars Are Made, 19-7015

Footpaths in the Air, 1-27

Supplementary Reading

How to Build a Flat-bottom Boat, 16-5983

Methods of Making a Boat Leak-proof, 18-6645

A Little Boat That Moves in Water, 15-5595

How to Make a Toy Submarine, 10-3503

How the Sailor Ties His Knots, 1-342

Sailors' Hitches and Splices, 9-3378

Keeping a Channel Free for Ships, 14-5082

Wonder Questions

Could we reach another world? 4-1353

Does the smoke of a train go the opposite way to the train? 2-585

If we could go on traveling upward, where shall we end? 17-6175

What is the Nautical Almanac? 2-457

When I walk in a moving train do I move faster than the train?
5-1811

Why are we thrown forward when the train stops suddenly?
12-4505

Why does a fog deaden sounds on the sea? 4-1451

Why does a railway engine puff? 15-5366

Why is the Wallace Line of importance? 2-587

Could we walk without our toes? 1-74

Why do we swing our arms when we walk? 5-1808

Why does a mast taper toward the top? 3-1115

Why is walking easier on a rough surface than on a smooth one?
6-2124

Communication

How Men Learned to Write, 10-3545

How We Send a Telegram, 17-6049

The Wonder of the Telephone, 17-6183

The Wire That Runs under the Sea, 12-4293

The history of the cable.

The Wonder of Radio, 17-6363

Makers of Telegraphs, Telephones and Wireless, 17-6235

How Our Letters Come to Us, 8-2653

Men Who Gave Us Printing, 9-3381

When the Fire Alarm Rings, 9-3157

Supplementary Reading

How to Read the Mariner's Compass, 16-5984

How to Speak by Signs, 11-4016

How to Signal Across a Field, 11-4017

How to Talk to the Deaf, 18-6523

Silent Messages of the Red Men, 5-1768

Flashing Messages at Night, 18-6643

For Radio Sets see **Electrical Engineering**, page 7632

Wonder Questions

Why cannot we send a letter without a stamp on it? 9-3355

Why does the slot of a letter box slant upward? 18-6556

How can a newspaper be made for a cent or two? 17-6178

Why does a fog deaden sounds on the sea? 4-1451

Does sound always travel at the same rate of speed? 2-457

Does sound travel in straight lines? 2-586

How can sound come into a room through a wall? 12-4279



Engineering

Engineering is the art of constructing and designing useful works. It embraces a very wide range of subjects, and the different departments into which the profession is now divided do not admit of very strict definition. The generally recognized divisions are: *civil engineering*, which includes the designing and construction of all public works, canals, river navigations, harbors, docks, bridges, lighthouses, water supply, etc.; *mechanical engineering*, which includes machinery, steam engines, etc.; *mining engineering*, which includes the mining and working of all the metals; and *electrical engineering*.

Civil Engineering

A River under a City, 14-5055

Canals and How They Work, 13-4785

Digging the Panama Canal, 1-361
The Erie Canal, 13-4881
Footpaths in the Air, 1-27
Making the Desert Bloom, 7-2543
Where Gaslight Comes From, 2-635
Riders on the Wind, 1-167
Some Other Famous Inventors, 19-7201

Things to Do

Model Gliders a Boy Can Make, 2-625
Practical Suggestions for Young Mechanics, 2-628
How to Measure a Stream, 19-7084
How to Read the Mariner's Compass, 16-5984
How to Use a Watch as a Compass, 16-5768
How Man Makes Stone, 7-2305
Finding Out How Early People Were Housed, 5-1655
Strong Construction for Crating, 7-2514
How to Make a Concrete Dog-house, 17-6259
How to Make a Concrete Drinking-basin for Animals, 14-5117
How to Make a Concrete Walk, 11-3854
How to Make Concrete Steps, 12-4499
Architecture through the Ages, 8-3010
Fifty Pictures of Man's March as a Builder, 8-3011
Uses of Concrete, 17-6286

Wonder Questions

Can the foundation of a building be relaid? 13-4596
What were the first buildings like? 8-3009
Which is the best stone for building? 8-2716
Why is concrete used for building purposes? 17-6285
Why does a factory have a tall chimney? 4-1232
Why is there a hollow in the face of a brick? 16-5962
Why has every pavement a curb of granite? 5-1752
Why must a big chimney have such a broad base? 7-2487
How can thin iron rods carry a suspension bridge? 12-4280
Can we make the tides work for us? 18-6558
Can a lighthouse manage itself? 10-3476
How can we measure a whole country? 16-5742
How did the Romans measure distance? 2-463
How does a siphon work? 15-5365
How does a spirit level work? 18-6553
How much stuff was dug out to make the Panama Canal? 4-1451
What do we mean by stable equilibrium? 7-2361
What special valve helps lifeboats to keep afloat? 5-1808
Why do soldiers break step while crossing a bridge? 7-2485
Why has not smoke a force like steam? 6-2250

Mechanical Engineering

How Elevators Go Up and Down, 4-1215

How Motor Cars Are Made, 19-7015

The Wonder of a Train, 2-405

Men Who Made the Railways, 5-1611

Conquerors of the Sea, 17-6397

Footpaths in the Air, 1-27

Supplementary Reading

A Machine That Wraps Things Up, 14-4951

A Look Inside the Speedometer, 1-77

How a Hydraulic Dredge Works, 14-5083

Wonder Questions

Why does a blacksmith's anvil have a tapered end? 14-5225

Why does a man tap the wheels of a train at the station? 16-5962

Why has a traction engine a grooved wheel? 7-2486

How does the engine clear away the snow? 14-5223

What is the principle of an escalator? 11-3976

Why does a railway engine puff? 15-5366

Does a flywheel ever explode? 15-5364

How does the speedometer of a motor car work? 1-75

Why has a wheelbarrow only one wheel? 8-3014

Mining Engineering

How to Know the Rocks, 17-6385

Oil and What It Can Do, 13-4533

Coal and What It Can Do, 3-785

Precious Stones, 19-7225

Making Iron and Steel, 6-1935

See also **Geology** and **Physical Geography**, pages 7614-15

Wonder Questions

Could a stone be dropped through a hole through the earth? 15-5365

How did men find that there is coal in the earth? 8-2718

Is the inside of the earth a vast hollow? 7-2610

Will the earth ever be cool right through? 18-6553

Why does coal burn and not a stone? 17-6285

Does a piece of iron get tired? 10-3729

How did all the metals get into the earth? 19-7246

How did the great coal forests come to be buried? 10-3581

What becomes of all the gold? 18-6549

What is peat and how is it made? 7-2612

What is the stuff we call quicksilver? 4-1233

Electrical Engineering

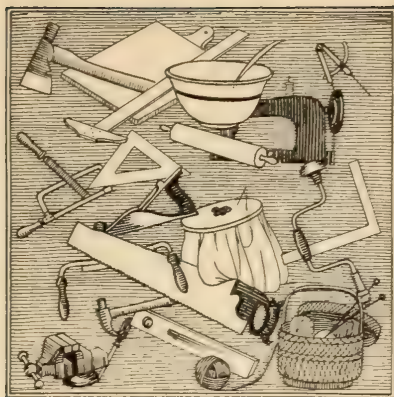
- The Story of Electricity, 16-5665
What Electricity Can Do, 16-5797
Electric Light and Heat, 16-5937
Water Power of the World, 15-5429
How We Send a Telegram, 17-6049
The Wonder of the Telephone, 17-6183
The Wonder of Radio, 17-6363
The Wire That Runs under the Sea, 12-4293
Men Who Gave Us Light, 3-989
Men Who Found Electricity, 4-1243
Makers of Telegraphs, Telephones and Wireless, 17-6235
A Modern Wizard, 17-6133
Life of Thomas Alva Edison.

Things to Do

- Electricity at Home, 5-1773
How to Fix a Cellar Electric Light, 6-2167
A Crystal Radio Receiving Set, 15-5510
How to Make a Simple One-tube Radio Set, 1-335
How to Construct a Short-wave Radio Receiving Set, 13-4624
Enjoy Your Radio on Auto Trips, 16-5977
How to Prevent Static in Your Radio, 17-6260
How Magnetism Marks the Miles, 1-76

Wonder Questions

- Why is a needle no heavier when magnetized? 11-3976
What are the little white caps on the telegraph poles? 16-5962
What are the wire hooks on the crossbars of telegraph poles? 7-2612
How is power carried to a distance? 14-5221
What does the expression "horse power" mean? 2-689
Do magnets ever lose their magnetic power? 10-3581
What is meant by a fuse in talking about electricity? 6-2250
What makes the glow in an electric lamp? 5-1608
Does electricity affect the growth of plants, 7-2609
Can trees receive a wireless? 3-980



THINGS TO MAKE AND THINGS TO DO



Manual Training

Tools and Their Uses

- Boy Carpenter's Box of Tools, 1-232
- How to Construct a Useful Work-bench, 11-4013
- Convenient Work-bench Devices, 17-6262
- How to Mark Your Metal Tools, 2-628
- How to Renew the Edge of Your Screw-driver, 2-627
- How to Sharpen Edge Tools, 13-4735
- Oilstones and How to Care for Them, 12-4263
- How to Prevent Nails and Screws from Rusting Quickly, 11-4079
- Suggestions for Young Mechanics, 2-628
- Suggestions for Nailing Boxes, 8-2741
- Strong Constructions for Crating, 7-2514

Woods

- How to Tell Similar Woods Apart, 6-2048
- How to Identify Oak Woods, 10-3631
- How to Know the Woods in Furniture, 16-5982
- How Durable Is the Wood You Are Using, 10-3632
- Defects and Blemishes in Lumber, 5-1766
- Why Are There Defects in Lumber? 8-3024
- How to Choose a Suitable Wood Glue, 4-1395
- How to Apply Paint to Wood, 11-4088
- How You May Refinish That Piece of Furniture, 4-1392

Things You Should Know about Veneered and Solid Furniture, 4-1284
How to Stain and Polish and Lacquer, 9-3119

Things Made from Wood

How to Construct a Useful Work-bench, 11-4013
Suggestions for Nailing Boxes, 8-2741
Box Furniture, 3-891; 6-2262; 7-2377; 8-2875
A Table Made from a Cheese Box, 14-5006
A Cabinet Made from Cigar Boxes, 15-5597
A Violin from a Cigar Box, 9-3113
Toy Furniture from Scraps of Wood, 5-1765
How to Make and Upholster a Piece of Furniture, 12-4373
A Portable Stool a Boy Can Make, 9-3117
How to Make a Useful Shelf, 14-4999
How to Make a Child's Blackboard, 14-5006
A Handy Writing-board, 2-749
Make This Handy Cutting-board, 6-2259
Make This Attractive Wood-basket, 19-7082
How to Make Your Own Fire-screen, 11-3858
Picture-frames Boys Can Make, 4-1393
Easily Made Rustic Furniture, 13-4736
Making a Summerhouse, 13-4849
Making a Garden Seat, 10-3506
Making a Kennel for a Dog, 16-5766
An Easily Made Weather-vane, 19-6959
How to Build a Flat-bottom Boat, 16-5983
Making a Sled, 6-2041
How to Make Your Own Ski, 16-5979
Building a Model Stage, 14-5203
How to Prepare for Amateur Theatricals, 16-5763

Things Made from Other Materials

How to Make a Concrete Dog-house, 17-6259
How to Make a Concrete Drinking-basin, 14-5117
How to Make a Concrete Walk, 11-3854
How to Make Concrete Steps, 12-4499
Clay Building Blocks or Bricks, 9-3248
How to Make Dishes of Clay, 14-5199
How to Make Tea Tiles of Clay, 13-4620
Cast Your Own Paper Weights, 3-1023

Manual Training

- Casting Dishes in Plaster Molds, 7-2511
- A Useful Paper-knife Made of Wood or Metal, 1-131
- Make a Useful Tray of Wood or Metal, 4-1283
- Make a Sugar Scoop from Tin Cans, 2-747
- Methods of Making a Boat Leak-proof, 18-6645
- How to Make and Use a Lasso, 6-2260
- Making a Simple Telescope, 12-4265
- How to Make a Magic Lantern, 8-3018

Drawing, Designing and Printing

- A Card That Helps Us Make Designs, 17-6264
- Making an Outline Portrait, 19-7077
- Two Curious Kinds of Pictures, 18-6644
- How to Draw Thousands of Faces, 17-6261
- How to Draw a Picture with 12 Lines and a Dot, 18-6524
- An Owl and a Frog Made from Circles, 5-1658
- Drawing a Cat with the Aid of Two Coins, 11-3855
- A Simple Way of Drawing a Spirited Horse, 2-628
- A Simple Way to Draw a Dog, 4-1394
- Queer Pictures Built Up from Squares, 2-753
- Printing and Fancy Lettering, 15-5596
- Printing Attractive Designs with Sticks of Wood, 1-129
- Learning the Art of Block Printing, 2-617; 15-5336
- How to Paint with Stencils, 1-336
- An Easily Made Stencil Plate, 3-1155
- How to Make Invisible Ink, 2-626
- Blue-print or Sepia-print Pictures, 15-5331
- Starting a School Paper, 15-5507

Paper Handwork

- How to Make a Simple Book, 8-2881
- How to Make a Sewed Book, 12-4261
- Make and Use a Simple Booklet, 2-750
- How to Make Paper Flowers, 12-4500
- How to Make Cut-paper Compositions, 13-4845
- A Fleet of Little Boats, 11-4083
- How to Make Paper Lanterns and Shades, 18-6777
- How to Make Your Own Paper, 3-1152
- Make Your Own Soldier's Uniform, 15-5339
- May Baskets Made with Paper Strips, 2-750

Things to Make with Folded Paper, 16-5767

What to Do with a Piece of Paper, 4-1396

A Windmill from a Square of Paper, 3-902

Toy-making for the Boy and Girl

Dolls of Many Nations, 10-3510; 10-3627; 11-4081

How to Make Little Red Riding-Hood Dolls, 2-516

A Bonnet for a Baby Doll, 12-4501

Filling a Doll's Christmas Basket, 6-2043

Dolls Made from Clothespins, 3-1030

Fighting Clothespins, 3-898

How to Carve Toys with a Pocket-knife, 18-6779

Toy Animals for You to Make, 2-511; 3-895; 6-2165

A Whistle That a Boy Can Make, 11-4085

How to Make a Wheelbarrow, 9-3253

How to Make a Toy Submarine, 10-3503

Making a Doll's House, 3-1150

Making a Toy to Measure the Wind, 4-1391

A Little Box That Makes a Whirlwind, 4-1398

A Box That Draws Voice Pictures, 17-6145

A Box That Makes Smoke Rings, 13-4846

Things to Make from an Elder Branch, 9-3254

What to Do with Spools and Bricks, 15-5334

Boat, Raft and Family Made of Cork, 2-514

A Cage Made of Cardboard and Pins, 6-2266

The Little Black Tangrams, 13-4731

The Little Bird That Turns Around, 6-2264

Making Spinning Pictures, 17-6390

Simple Kites and How to Make Them, 3-900

How to Make Fancy Kites, 16-5770

Making a Hot-air Balloon, 10-3770

A Little Boat That Moves in Water, 15-5595

John Chinaman Made of Peanuts, 2-512

A Handful of Straw and an Indian, 18-6645

A Jumping Frog from a Wishbone, 15-5595

A Popgun Made from a Quill, 15-5337

How to Make a Leather Sucker, 3-902

A Little Toy Cannon, 11-4085

Tops Which Any Boy Can Make, 14-5200

Making a Wonderful Top, 10-3509

Household Arts

- Making an Interesting Bean-bag, 1-132
- Music from Drinking-glasses, 15-5333
- Musical Instruments from Old Bottles, 17-6387

Practical Science

- How to Tell the Weather, 3-1152
- How to Feel the Pressure of the Air, 18-6784
- Making a Chemical Weather-glass, 12-4502
- A Floral Barometer, 3-1028
- Thermometers, 7-2648
- Simple Experiments with Air and Water, 19-7083
- A Fairy-fountain Experiment, 2-627
- The Magic of a Glass of Water, 2-622
- A Filter That a Boy Can Make, 18-6781
- Photography without a Camera, 8-2739
- Foucault's Pendulum, 8-3017
- Electricity at Home, 5-1773
- How to Make a Simple One-tube Radio Set, 1-335
- How to Prevent Static in Your Radio, 17-6260
- How to Construct a Short-wave Radio Receiving Set, 13-4624
- A Crystal Radio Receiving Set, 15-5510
- Enjoy Your Radio on Auto Trips, 16-5977
- Simple Tests for Cotton, Linen, Wool and Silk, 5-1774
- How to Test for Pure Silk, 2-621



Household Arts

Cooking

- How to Measure Correctly in Cooking, 1-234
- Suggestive Recipes: Potatoes, 3-904
- Simple Food Experiments: Potatoes, 3-1154
- Finding Out How Milk Is Handled, 10-3508
- How to Make Butter and Cottage Cheese, 3-896
- How Bread Is Made, 2-626
- How to Keep Fruit Fresh, 11-4084
- Ices Made without a Freezer, 11-4088
- How to Make Candy at Home, 11-3856
- How to Make Candies, 1-340

- Recipes for Candy, 2-752
- Delicious Coconut Candy, 10-3771
- Jelly Children Can Make, 1-130
- How to Make Our Own Easter Eggs, 10-3505
- How to Prepare a Dainty Tea, 9-3376
- How Meat Products Are Used, 7-2512
- How to Make Soap for Mother, 1-130

Sewing

- How to Use the Needle, 1-338
- A Butterfly Needle-book, 16-5982
- Make a Felt Sewing-bag, 18-6778
- How to Make a Girl's Workbox, 2-515
- How to Make a String Bag, 6-2163
- A Useful Shoe-bag of Serge, 8-2882
- How to Make a Handy Marble-bag, 3-1149
- How to Make Old Clothes New, 11-3857
- How to Knit a Child's Sock, 13-4851
- A Child's Apron Easily Made, 7-2649
- A Doll's Chemise, 2-619
- A Dainty Afternoon Tea-cloth, 6-2046
- A Huckaback Table-cover, 14-5118
- A Table-cover in Appliqué Work, 16-5891
- A Dainty Muslin Window-curtain, 17-6387
- How to Make a Little Wool Mat, 6-2265
- Decorating a Scarf by the Tied-and-dyed Method, 1-232
- A Little Picture on Canvas, 19-7081
- What to Do with a Box of Beads, 4-1399
- A Bead Belt for an Indian Costume, 9-3114
- How to Make Indian Clothing, 9-3251
- A Button Made from a Shoe-lace, 17-6386

Decoration

- How to Make Attractive Hand-woven Rugs, 14-4997
- Making a Basket of Raffia Work, 18-6638
- A Raffia-covered Rattan Basket, 6-2042
- A Small Reed Basket or Hamper, 3-897
- To Make Parchment Lamp-shades, 16-5890
- How to Make an Attractive Plant Stand, 7-2645
- Arranging Flowers for the House, 2-620

Making a Flower-box for the Window, 2-513

Fruit Trees on the Dining-table, 9-3118

How to Make a Dainty Blotter, 12-4380

Helpful Things about a House

The Right Way to Do Simple Things, 19-7079

The Right Way to Clean Things, 15-5335

How to Remove Stains, 2-618

The Right Way to Mend Things, 13-4737

A Convenient Box for Knives and Forks, 13-4734

How to Fix a Cellar Electric Light, 6-2167

How to Repair an Extension Cord, 6-2045

How to Repair Leaking Faucets, 10-3766

How to Repair Window Shades, 10-3771

How to Preserve Flowers, 11-3853

First Aid

What to Do in Case of Fire, 10-3772

What to Do in Trouble, 11-4082

Giving First Aid to the Injured, 12-4266

The Bones and Arteries of Our Body, 13-4618

How to Treat Broken Bones, 13-4732

Fractures, Dislocations and Sprains, 13-4847

Many Ways of Stopping Bleeding, 14-5000

Wounded Arteries and Veins, 15-5599

What to Do in Many Kinds of Accidents, 16-5980

What to Do in Cases of Drowning, 17-6147

The Right Way to Use a Lifebuoy, 18-6639



Indoor and Outdoor Recreation

Outdoor Amusements

Games for Groups

Ball Games for Out of Doors, 4-1400

America's National Game, 17-6141

American Football, 19-6960

The Game of Field Hockey, 16-5885

The Game of Tennis, 13-4621
Golf for Boys and Girls, 9-3247
Outdoor Games, 3-1029; 3-1153; 6-2164; 10-3769; 11-3855
Some Favorite Games, 14-5113
Games for Boys, 18-6523
Some Games Played with Hoops, 12-4496
Games to Play with Marbles, 17-6389
Games to Play on the Beach, 17-6257
How to Practice Fly-casting, 15-5513
The Game of Stickerchief, 11-3859

Amusements for Individuals

Making and Using a Pair of Stilts, 17-6263
Home-made Tents, 2-624
A Home-made Hammock for a Camping Outfit, 10-3631
An Easily Made Shelter, 19-6961
The Way to Put Up a Bell Tent, 5-1772
How to Find Your Way in a Forest, 4-1285
How to Follow a Trail, 3-1024
How to Study the Weather, 10-3625
How to Tell Time by the Sun, 6-2261
How to Signal across a Field, 11-4017
How to Speak by Signs, 11-4016
The Silent Messages of the Red Men, 5-1768
Flashing Messages at Night, 18-6643
How to Use a Watch as a Compass, 16-5768
How to Measure a Stream, 19-7084
To Measure the Height of a Tree, 3-899; 17-6145
Two Ways of Splicing a Stick, 12-4374
How to Hide in the Open Country, 2-749
How to Know the Rocks, 17-6385
Using the Camera Outdoors, 13-4617
How the Sailor Ties His Knots, 1-342
Sailors' Hitches and Splices, 9-3378
How to Know Sailing Ships, 11-4086
How to Understand a Ship, 14-5002
How to Read the Mariner's Compass, 16-5984
How to Have Fun in the Water, 8-3024
Things to Remember While Bathing, 7-2513
Building Sand Castles, 12-4495
A Christmas Tree for the Birds, 7-2381

Physical Exercises

- How to Swim and Dive, 19-6955
Some Exercises to Practice at Home, 15-5332
How to Dance the Morris Dances, 10-3504; 18-6785

Indoor Amusements

- Blindfold Games for Boys and Girls, 18-6519
How to Make and Play Jump-peg Game, 1-339
How to Make and Play Ring-toss Game, 14-5117
Make and Play Bean-bag, 9-3116
Games Played with Dominoes, 12-4375
How to Play Checkers, 15-5338
Hunting the Fox and the Geese, 15-5338
How to Play Chess, 5-1771
The Game of Snap, 15-5514
What Animals Are These? 8-2880
What Are These Plants? 16-5771
What Place Are We In? 6-2168
What Scene in History Is This? 8-3023
Who Are These People? 14-5205
The Game of "What Is Wrong?" 18-6639
The Game of Zoo-guess, 5-1776
A New Game to Play with an Atlas, 9-3375
Amusement with Stops and Commas, 19-7080
Proverb Games for the Fireside, 15-5598
Twenty-five Ways of Saying the Same Thing, 17-6388
The Game of Making Rhymes, 18-6518
A Good Game to Play on a Train, 12-4502
Making Anagrams as a Pastime, 18-6520
Photography on a Table, 18-6517
Mountains and the Moon on a Table, 18-6516
How to Play the Harmonica, 19-6962
Games to Play at a Party, 3-903; 6-2167
A Fancy-dress Tea-party, 17-6144
Things to Do on Hallowe'en, 18-6522
A Christmas Charade, 7-2650
A Christmas Gymkhana, 7-2517
Games for Tiny Children, 8-2743
Telling Stories by Means of Sticks, 1-231
Bear and Wolf (a little play) 18-6782

Robin Hood (a little play) 19-7078

How to Talk to the Deaf, 18-6523

The Living Marionette, 5-1769

Animals and Plants

Build a House for Your Favorite Bird, 1-341

How to House Several Birds at Once, 17-6146

Nesting-boxes for Birds, 18-6637

Poultry-keeping as a Hobby, 15-5512

How to Care for Goldfish, 3-1026

Keeping Guinea-pigs as Pets, 13-4738

How to Study the Habits of Ants, 12-4264

How to Save Trees by Tree Surgery, 10-3626

How Trees Are Made to Serve Us, 12-4378

Mustard and Cress Grown Anywhere, 2-748

Plants That Grow on Short Notice, 7-2515

Protecting Plants against Cold, 5-1767

Hobbies

How to Make a Butterfly Collection, 10-3765

Feather Collections for Bird-lovers, 14-5005

A Collection of Seaweeds, 15-5593

How to Make a Collection of Shells, 14-5201

Shells for Decorative Purposes, 15-5510

Making a Collection of Rocks, 13-4623

Making a Collection of Woods, 16-5889

The Boy's Home Museum, 11-4018

A Collection of Stamps, 14-5111

Recent Stamps for Your Collection, 16-5887



Brain Resters and Testers

Puzzles, Problems and Illusions

Can You Tell the Reason Why? 8-2742

Can We Always Believe Our Own Eyes? 8-2746

Can You Find Your Way into This Maze? 17-6258

Can You Read These Names of Plants? 18-6646

- How Did the King's Jester Escape from Prison? 4-1286
How Did the Farmer Enlarge the Fold? 16-5765
How Did the Father Divide the Garden? 7-2380
How Did the Ladies Cut the Carpet? 2-751
How Fast Do You Walk? 6-2048
Little Problems for Clever People, 2-751; 3-899; 3-1151; 4-1284; 6-2166
The Problem of the Horseshoe Card, 14-5202
The Problem of the Magic Square, 6-2166
The Problem of the Traveler's Dinner, 13-4622
The Puzzle of the King's Guard, 16-5892
The Puzzle of the Miller's Sacks, 4-1286
The Puzzle of the Mysterious Square, 18-6780
The Puzzle of the Secret Lock, 8-2741
The Puzzle of the Trees in the Park, 13-4620
The Puzzles of the Wizard King, 18-6521; 18-6640
Puzzles with Paper and Scissors, 15-5337
Puzzle Pictures from English History, 2-754
Puzzling Cards, 7-2647
Some Puzzle Rhymes and Verses, 15-5511
What Is Wrong in These Pictures? 5-1654; 11-3860
What Is Wrong in This Room? 4-1282
What Is Wrong with This Steamer? 12-4268

Tricks

- Hints and Tricks for Odd Moments, 16-5978; 17-6391; 18-6642; 19-6964
The Wizard's Wand and Purse, 9-3380
The Self-suspending Wand, 10-3507
The Mysterious Paper Purse, 7-2652
How the Conjuror Makes His Money, 3-901
The Disappearing Penny, 6-2047
The Wandering Coin, 4-1397
A Clever Ring-and-Coin Trick, 3-1154
The Wizard's Pocket Handkerchief, 7-2382
The Coin and the Handkerchief, 11-4080
The Disappearing Quarter, 5-1775
The Mysterious Disappearing Penny, 14-5202
How to Move a Penny without Touching It, 18-6641
A Good Conjuring Trick with Nuts, 15-5595
Fun in a Box of Matches, 10-3767
Pulling One Stick through Another, 3-1030

- The Magician's Jacket, 4-1285
Tying Two Persons Together, 13-4738
How to Make a Magic Knot, 4-1395
The Boy Conjuror's Magic Scissors, 3-1025
Cutting the Magic String, 1-344
How to Pass through a Postcard, 10-3771
The Wizard of Wabasha, 15-5509
The Mystery of Telegraphing Thought, 2-518
Thought-reading by Cards, 6-2044
Cards That Can Guess Numbers, 18-6784
How to Tell a Card by Touching It, 13-4735
The Robbers and the Soldiers, 7-2518
The Ball That Answers Questions, 2-623
A Trick You Can Play with a Book, 2-753
Tricks with a Set of Dominoes, 12-4498
Throwing Shadows on the Wall, 16-5769
Name Pictures and How to Make Them, 12-4502
The Mysterious Jacob's Ladder, 18-6781
The Pillars of Solomon, 9-3377
The Vanishing-pillar Trick, 5-1772
The Imp with the Disappearing Head, 10-3508
How to Become a Ventriloquist, 9-3379
The Chair That Comes to You, 7-2651
The Marvelous Egg, 13-4850
The Mysterious Tumbling Tablet, 4-1398
How to Blow a Brick Over, 3-1025
How to See through a Brick, 12-4377
Wooden Balls That Twist and Turn, 7-2380
The Ink-and-Water Trick, 14-5116



HELPS TO LEARNING



Matching Games

Weighing Games, 1-346

Match Mine, 1-347

Learning everyday materials.

Color Games

Matching Colors to Fruits and Vegetables, 4-1287

Making a Color Chart, 4-1294

Choosing Colors for Animal Word Cards, 5-1647

Color Word Cards, 6-2052

Reading

Color Words, 4-1289

Fruits and Other Words, 4-1505

Word Cards for Animals, 5-1647

Sentences, 5-1650

Action Words, 5-1895

Making a Dictionary, 6-2049

Alphabeting and filing word cards.

New Words for the Dictionary, 6-2054

Making a Word File, 7-2386

Stories by Children, 7-2387

Easy Primers, 7-2389

Sound Games, 7-2519

Sounding out words by their letters.

Testing Games for Reading, 8-2747

The child corrects his own work.

Harder Sound Games, 8-2883

Reading Numbers to 102, 9-3255

Reading Money, 9-3256

Measuring Our Height, 9-3256

More Sound Games, 9-3258

Vowel sounds and consonant sounds.

Reading Tests, 10-3636

Writing

Writing Down Game Scores, 3-1020

Words, 4-1290

Signs for a Fruit Stand, 4-1506

Words from the Dictionary, 7-2383

Capital Letters, 7-2386

Testing Games for Writing, 8-2747

The child corrects his own work.

Drawing and Writing Games, 8-2751

Writing Relays, 9-3122

Games for speed and clearness in writing.

Writing Answers to Addition Combinations, 9-3123

Arithmetic

Picture Cards with Digits 1, 2, 3, 4, 5, 1-347

Making a Score Book, 2-519

Learning Digits 1, 2, 3, 4, 5, 2-520

Learning Digits 6, 7, 8, 9, 3-1021

Addition Combinations, 4-1508

Hopscotch with Addition Combinations, 4-1510

Scoring by 2's, 5-1892

The Beginnings of Subtraction, 6-2270

Subtraction Games, 7-2523

Counting, 8-2886

Harder Subtraction Games, 8-2886

Weighing Yourself, 9-3125

Learning the scales.

Reading Larger Numbers, 9-3126

Counting by 10's, 9-3126

Counting to 102, 9-3255

Column Addition Games, 10-3512

Games with Money, 10-3516

Common Measures, 10-3517

Making Change, 10-3633

Drawing

Drawing Puzzles, 8-2749

Drawing and Writing Games, 8-2751

Children's Drawings, 8-2752

A simple scale by which the child may measure the excellence of his own drawings.

Telling Time

Learning to Read What the Clock Says, 6-2267

Nature Games

Games with Trees, Flowers and Vegetables, 10-3514

Games about Butterflies, Frogs and Insects, 10-3515



BIOGRAPHY



Men Who Have Made History

The Great Greeks, 2-701

Pythagoras, Euclid, Hippocrates, Dionysius, Solon, Miltiades, Leonidas, Aristides, Themistocles, Pericles, Alcibiades, Demosthenes, Alexander the Great.

The First Great Men of Rome, 4-1361

Lucius Junius Brutus, Marcus Furius Camillus, Regulus, Cornelius Scipio Africanus, Marcus Porcius Cato, the Gracchi, Pompey, Julius Cæsar, Marcus Antonius, Cicero.

The Emperors of Rome, 5-1859

Augustus Cæsar, Tiberius, Caligula, Claudius, Nero, Vespasian, Trajan, Hadrian, Antoninus Pius, Marcus Aurelius, Diocletian, Constantine the Great.

Supplementary Reading

The Grandeur That Was Rome, 4-1191

Defenders of Liberty, 13-4583

David, Miltiades, Themistocles, Judas Maccabæus, Boadicea, Alfred the Great, William Wallace, Andreas Hofer, Mazzini, Garibaldi, Louis Kossuth, Simon Bolivar, Toussaint l'Ouverture.

The Men of the Crusades, 7-2583

Peter the Hermit, Raymond of Toulouse, Godfrey of Bouillon, Duke Robert of Normandy, St. Bernard of Clairvaux, Saladin, Richard Cœur-de-Lion, Barbarossa, Louis IX.

St. Louis and St. Joan, 16-5817

Louis IX of France and Joan of Arc.

Supplementary Reading

The Beginnings of France, 10-3429

Kings and Queens of Scotland, 12-4205

Kenneth MacAlpine, Duncan, Malcolm Canmore, David I, William the Lion, Alexander III, William Wallace, Robert Bruce, Lord James Douglas, James I, James IV, Mary Queen of Scots.

Cromwell and His Men, 11-3845

Sir John Eliot, Thomas Wentworth, John Pym, John Hampden, Prince Rupert, Lord Falkland, Henry Ireton, John Bradshaw, Admiral Robert Blake.

Supplementary Reading

The Times of the Stuarts, 6-1973

Bonnie Prince Charlie, 15-5639

The story of Prince Charles Stuart, "the Young Pretender."

Supplementary Reading

From the Stuarts to Napoleon, 6-2097

The French Revolutionists, 6-2127

Jean Jacques Rousseau, Mirabeau, Lafayette, Louis XVI, Marie Antoinette, Madame Roland, Danton, Marat, Robespierre.

Supplementary Reading

France in the Revolution, 10-3563

Napoleon and His Conquerors, 6-2199

Napoleon, Nelson, Wellington.

The Story of Frederick the Great, 11-4043

Supplementary Reading

The Beginnings of Germany, 11-3959

Two Spies of the Revolution, 11-3995

Nathan Hale and John André.

Five Famous Presidents, 3-1039

Washington, Jefferson, Jackson, Lincoln, Grant.

Administrations of the Presidents, 11-3937

Short biographies of all the presidents.

Some Other Famous Presidents, 19-7193

Cleveland, Roosevelt, Wilson.

Some American Statesmen, 10-3487

Winthrop, Franklin, Hamilton, Jefferson, Burr, Gallatin, John Quincy Adams, Henry Clay, John C. Calhoun, Daniel Webster, Thomas Hart Benton, Douglas, Seward.

Naval Heroes of Young America, 17-6325

John Paul Jones, Barry, Decatur, Hull, Bainbridge, Lawrence, Perry.

Supplementary Reading

Ships and Sailors of Our Navy, 18-6815

Explorers and Pioneers

Men Who Made the World Known, 1-83

Marco Polo, Christopher Columbus, Vasco da Gama, Ferdinand Magellan, Sebastian del Cano.

See also **Geography and History**, pages 7583-97

Men of the Northern Sea-gates, 8-2977

Ohthere, Cabot, Drake, Willoughby, Frobisher, John Davis, Barents, Baffin, Hudson, Bering, Cook, Scoresby, John Ross, James Clark Ross, Parry, Sir John Franklin, Beechey, Nordenskiold, Amundsen.

The North Pole Men, 13-4707

Inglefield, Kane, Hayes, Hall, Payer, Weyprecht, Lamont, Leigh Smith, Nares, Greely, Jackson, De Long, Nansen, Sverdrup, Andrée, Peary, Stefansson, Rasmussen, MacMillan, and others.

The South Pole Men, 14-5089

Sir Douglas Mawson, De Gerlache, Amundsen, D'Urville, Scott, Shackleton, Weddell, Wilkes, Borchgrevink, Von Bellingshausen, and others.

The Elizabethan Sea-dogs, 14-4959

Hawkins, Frobisher, Gilbert, Drake, Grenville, John Smith, Henry Hudson, Raleigh.

Supplementary Reading

The Times of the Tudors, 5-1813

Conquerors of the Sea, 17-6397

Papin, Jouffroy, Fulton, Fitch, Symington, Bell, Watt, Brunel, Ericsson, Parsons, Harrison, Diesel.

Supplementary Reading

The Reign of Wooden Ships, 11-3909

A Great Ship and What It Can Do, 12-4415

Two American Pioneers, 6-2189

Daniel Boone and James Robertson.

The Men Who Found Australia, 3-859

Dirk Hartog, William Dampier, James Cook, Wentworth, Blaxland, Lawson, Matthew Flinders, Lieutenant Oxley, Charles Sturt, John McDouall Stuart, Edward John Eyre, Burke and Wills.

Supplementary Reading

Australia, the Great South Land, 7-2463

The Explorers of Africa, 2-465

James Bruce, Mungo Park, Hugh Clapperton, Richard Lander, Robert Moffat, David Livingstone, Henry Stanley, Emin Pasha (Edward Schnitzer), Sir Richard Francis Burton, John Hanning Speke, James Augustus Grant, Sir Samuel Baker.

Supplementary Reading

How Africa Has Been Divided, 18-6803

The British Empire in Africa, 9-3047



Great Teachers

The Immortal Three, 16-5915

Socrates, Plato and Aristotle.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Men Who Gave Us Schools, 14-5247

Alcuin, Erasmus, Colet, Loyola, Comenius, Rousseau, Pestalozzi, Froebel, Lancaster, Mann.

Two Men Who Loved the Indians, 18-6631

Père Marquette and John Eliot.



Early Religious Leaders

Some Founders of Religions, 9-3085

Gautama (Buddha), Vardhamana, Lao-tsze, Confucius, Zoroaster Mohammed.

Early Leaders of the Church, 8-2843

St. Columba, Gregory the Great, the Venerable Bede, Dunstan, Lanfranc, Anselm, Gregory VII (Hildebrand), Thomas à Becket, Pope Innocent III, Langton.

Some Famous Monks, 13-4859

Athanasius, St. Ambrose, St. Jerome, St. Boniface, St. Bernard of Clairvaux, Abélard, St. Dominic, Roger Bacon, Thomas à Kempis, Fra Angelico, Savonarola, St. Ignatius de Loyola, St. Francis Xavier.

The Little Poor Man of Assisi, 6-1991

The life of St. Francis.



Scientists and Inventors

The First Astronomers, 1-201

Thales, Hipparchus, Ptolemy, Nicholas Copernicus, Robert Recorde Tycho Brahe, John Kepler.

Men Who Mapped the Skies, 1-279

Galileo, Jeremiah Horrocks, Sir Isaac Newton, Christian Huygens, John Flamsteed, Edmund Halley, James Bradley, Nevil Maskelyne, Sir George Biddell Airy, Sir William Herschel, Caroline Herschel, Sir John Frederick William Herschel, Sir William Huggins, Sir Norman Lockyer, Giovanni Virginio Schiaparelli, Percival Lowell, Simon Newcomb, Edward Emerson Barnard, Edward Charles Pickering, William Henry Pickering, George Ellery Hale.

See also **Astronomy**, page 7613

Men Who Gave Us Printing, 9-3381

Gutenberg, Coster, Caxton, Wynkyn de Worde, Manuzio, Caslon, Pierre, Gordon, Nicholson, König, Bullock, Maxwell, Ives.

Supplementary Reading

The Wonder of a Book, 3-1053

The Men Who Gave Us Light, 3-989

Dr. Clayton, William Murdock, Winsor, David Mellville, Auer von Welsbach, Sir Humphry Davy, Aimé Argand.

Men Who Made the Railways, 5-1611

George Stephenson, James Watt, Richard Trevithick, Peter Cooper, Matthias Baldwin.

Supplementary Reading

The Wonder of a Train, 2-409

Men Who Found Electricity, 4-1243

Thales, Pliny, William Gilbert, Robert Boyle, Otto von Guericke, Francis Hawksbee, Stephen Gray, Du Fay, Sir William Watson, Benjamin Franklin, John Canton, Henry Cavendish, Luigi Galvani, Alessandro Volta, Oersted, Michael Faraday, Joseph Henry, James Clerk Maxwell, Heinrich Rudolph Hertz, Sir Joseph Thomson.

Supplementary Reading

The Story of Electricity, 16-5665

What Electricity Can Do, 16-5797

Electric Light and Heat, 16-5937

The Makers of Telegraphs, Telephones and Wireless, 17-6235

Ronalds, Wheatstone, Cooke, Morse, Henry, Maxwell, Steinheil, Kelvin, Squier, Reis, Bell, Gray, Hughes, Edison, Pupin, Marconi, Poulsen, Fleming, De Forest, and others.

Supplementary Reading

How We Send a Telegram, 17-6049

The Wonder of the Telephone, 17-6183

The Wonder of Radio, 17-6363

A Modern Wizard, 17-6133

The story of Thomas A. Edison.

Some Other Famous Inventors, 19-7201

Hargreaves, Arkwright, Crompton, Cartwright, Jacquard, Whitney, Brindley, Brunel, Nasmyth, Bessemer, Siemens, Greathead, Kelvin, Ford, Hall, Colt, Gatling, Browning, McCormick, Wood, Goodyear, Pullman, Otis, Howe, Singer, Sholes, and others.

See also **Applied Science and Industry**, pages 7626-29

Some European Men of Science, 2-589

Gottfried Leibnitz, Carl Linnæus, Leopold Cuvier, Friedrich von Humboldt, Sir Charles Lyell, Baron Liebig, Sir Richard Owen, Charles Darwin, Alfred Russel Wallace, Herbert Spencer, John Tyndall, Thomas Henry Huxley.

The World's Great Doctors, 8-2721

Moses, Hippocrates, Galen, Guy de Chauliac, Paré, Vesalius, William Harvey, Boerhaave, William and John Hunter, Edward Jenner, Pinel, Morton, Long, Wells, Jackson, Simpson, Brunton.

Conquerors of Disease, 15-5481

Pasteur, Lister, Röntgen, Koch, Theobald Smith, Metchnikoff, Ross, Reed, Noguchi, Bruce, Horsley, Finsen, Carrel, Dakin, Banting, Best.



Naturalists

Some Men Who Loved Nature, 19-7051

Wilson, Audubon, Agassiz, Gray, Dana, Thoreau, Dawson, Macoun, Muir, Burroughs.

A Man Who Loved Plants, 15-5381

The story of Luther Burbank.

Jack Miner, the Man Who Loves Birds, 8-2813



Writers and Artists

Writers of the Fairy Books, 9-3193

Straparola, Perrault, Madame d'Aulnoy, the brothers Grimm, Hans Christian Andersen, Hawthorne, Croker, Frances Browne, Charles Kingsley, Lewis Carroll, George MacDonald, Joel Chandler Harris, Sir James M. Barrie, Maurice Maeterlinck.

See also **History of Literature**, pages 7657-72

Composers of Great Music, 19-6913

Palestrina, Tallis, Byrd, Handel, Bach, Gluck, Haydn, Mozart, Beethoven, von Weber, Schubert, Schumann, Chopin, Mendelssohn,

Berlioz, Wagner, Liszt, Brahms, Tschaikowsky, Meyerbeer, Rossini, Donizetti, Bellini, Verdi, Balfe, Gounod, Leoncavallo, Puccini, Sullivan, Grieg, Dvorák, Debussy, Elgar, MacDowell, Strauss.

Supplementary Reading

Great Classic Composers and Their Works, 19-7071

Romantic Composers and the Music of To-day, 19-7149

Writers of Famous Songs, 10-3605

Rouget de Lisle, Thomson, Thomas Campbell, Dibdin, Garrick, Cherry, Braham, Willard, Charles Mackay, Bayly, Lady John Scott, Carey, Lady Anne Lindsay, Lady Nairne, James Hogg, Moore, Sir Walter Scott, Samuel Lover, Schneckenburger, etc.

For Songs see **Poetry Index**.

The Writers of the Hymns, 12-4435

John Milton, Luther, John and Charles Wesley, Isaac Watts, Heber, Tate, Sarah Adams, Frances Ridley Havergal, Moody, Sankey, F. J. Crosby, Keble, Toplady, Cowper, Lyte, Bowring, Phillips Brooks, Newman, Faber, Baring-Gould, etc.

For Hymns see **Poetry Index**.

Song-writers of the United States, 18-6509

Billings, Woodworth, Payne, Foster, Emmett, Key, Hopkinson, Smith, Julia Ward Howe, Work, Root, Randall, Kittredge, Haydon, Gilmore, Thorp.

For Songs see **Poetry Index**.

Great British Painters, 7-2327

Hogarth, Constable, Raeburn, Gainsborough, Reynolds, Romney, Morland, Lawrence, Turner.

Supplementary Reading

The Golden Age of British Art, 6-2109

The Makers of Venice, 4-1455

Gradenigo, Giovanni Giocondo, Sanmichele, Sansovino, Palladio, Pisano, Lombardo, Leopardi, Verrocchio, the Bellinis, Dürer, Carpaccio, Giorgione, Titian, Tintoretto, Veronese, and others.

Supplementary Reading

Venice Rises and Italy Wanes, 3-1103

The Builders of Florence, 5-1735

Arnolfo di Cambio, Cimabue, Giotto, Brunelleschi, Ghiberti, Donatello, the Della Robbias.

Supplementary Reading

Italy's Immortals, 13-4603

Great Builders of London, 12-4353

Gundulf, Christopher Wren, Sir Robert Smirke, Sir Charles Barry, William Railton, Sir Edwin Landseer, William Wilkins.

Supplementary Reading

Four Centuries in Europe, 18-6489

For biographies of literary men and women see **History of Literature**, pages 7657-72.

For biographies of painters, sculptors and architects see **Fine Arts**, pages 7702-21.



Miscellaneous

Two Pioneer Women, 16-5699

Elizabeth Fry and Florence Nightingale.

Women in the United States, 14-5267

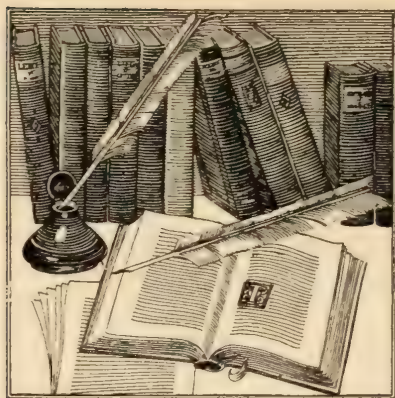
Anne Hutchinson, Emma Willard, Lucretia Mott, Elizabeth Cady Stanton, Mary Baker Eddy, Mary Lyon, Mary Livermore, Clara Barton, Elizabeth Blackwell, Frances Willard, Ella Flagg Young, Helen Keller, Jeannette Rankin.

Some Famous Ladies of the White House, 2-391

Martha Washington, Abigail Adams, Dolly Madison, Mary Lincoln, Frances Cleveland.

A Friend to Fisher Folk, 7-2495

The story of Dr. Wilfred T. Grenfell.



ENGLISH AND LITERATURE



Speech and Writing

How Man Learned to Write, 10-3545

The first writing was done by means of rude pictures; then came the writing of signs or hieroglyphics and the development of an alphabet. How we learned to decipher these ancient writings; the finding of the Rosetta Stone, and so on.

Wonder Questions

Why will a slate pencil write on slate but not on paper? 4-1356

Why will pen and ink write on paper better than on a slate? 14-5087

How did men learn to talk? 15-5515

The Voice-box and Its Uses, 10-3555

Talking and singing—a chapter on speech.

Wonder Question

Will all the people ever speak the same language? 3-877

Men Who Gave Us Printing, 9-3381

Modern methods of book printing.

The Wonder of a Book, 3-1053

Wonder Questions

What is papyrus? 11-3977

What is the paper we use made of? 8-3016

How many books are there in the world? 2-463

Why does blotting-paper absorb ink? 10-3578

What is the type known as Braille? 15-5364

History of Literature

English Literature

The Realms of Gold, 1-79

A bird's-eye view of the scope of literature.

Poetry More Precious than Gold, 1-215

A survey of the different forms of verse.

The Men Who First Wrote English, 1-299

Chaucer, Wyclif, Gower, Langland, Caxton, Sir Thomas More, Malory, Tyndale.

Chaucer, *The Canterbury Tales*, 13-4767

The Greatest Book in English, 2-473

A Shining Splendor Comes, 2-721

William Shakespeare.

Shakespeare's Plays, 3-833

A *Midsummer Night's Dream*, 8-2685

All's Well That Ends Well, 8-2686

The *Tempest*, 8-2687

The *Merchant of Venice*, 8-2688

Othello, the Moor of Venice, 8-2691

Twelfth Night, 8-2692

Measure for Measure, 16-5755

The Winter's Tale, 16-5756

Much Ado about Nothing, 16-5757

Romeo and Juliet, 16-5759

Hamlet, Prince of Denmark, 16-5761

Speeches from Shakespeare, 11-3927

Shakespeare at His Height, 3-983

Great Writers of Shakespeare's Time, 3-1117

Sir Thomas Wyatt, Tottel, Holinshed, Edmund Spenser, Richard Hakluyt, Christopher Marlowe, Michael Drayton, Francis Bacon, Beaumont and Fletcher, Ben Jonson.

Marlowe, *The Passionate Shepherd*, 9-3274

Drayton

The Arming of Pigwiggen, 3-847

The Ballad of Agincourt, 5-1885

Jonson

To Celia, 2-489

True Growth, 3-847

Suckling, *Orsames' Song*, 17-6376

Lovelace

To Althea from Prison, 16-5708

To Lucasta on Going to the Wars, 17-637

Herrick

- The Argument of His Book, 1-328
- Cherry Ripe, 8-3002
- Counsel to Girls, 5-1779
- Fair Daffodils, 7-2527
- A Grace, 2-488
- Rubies and Pearls, 16-5708
- A Ternarie of Littles, 17-6379

Herbert

- The Elixir, 12-4349
- Unkindness, 17-6379
- The Pulley, 1-323

Milton and His Poems, 4-1235

- L'Allegro, 1-327
- Il Penseroso, 1-327
- Ode on the Morning of Christ's Nativity, 4-1236
- Sonnets
 - On his Blindness, 17-6378
 - On the Late Massacre in Piemont, 1-328
 - On Shakespeare, 2-724
 - On His Having Arrived at the Age of Twenty-three, 1-328
 - To the Lord-General Cromwell, 12-4349
 - To the Nightingale, 14-5238

Poets of a Dull Day, 4-1357

- Dryden and Pope.
 - Dryden, A Song for St. Cecilia's Day, 4-1270

John Bunyan and Daniel Defoe, 4-1477

- Defoe, Robinson Crusoe, 2-665
- Bunyan, The Pilgrim's Progress, 15-5543

Swift, Addison and Steele, 5-1619

- Swift, Gulliver in Lilliput, 3-947
- Addison
 - The Spacious Firmament, 13-4600
 - The Twenty-third Psalm, 2-486

The Diary-writers, 5-1727

- Samuel Pepys, John Evelyn, Fanny Burney.
 - Evelyn, The Great Fire of London, 8-2819

Doctor Johnson and His Friends, 5-1867

- James Boswell, Oliver Goldsmith.
 - Goldsmith, The Deserted Village, 15-5645

Poetry Goes Back to the Country, 6-2027

- James Thomson, Allan Ramsay, John Dyer, Thomas Gray, William Collins, William Cowper.
 - Gray, Elegy Written in a Country Churchyard, 9-3337

Cowper

- Boadicea, 1-322
- Dispute between Nose and Eyes, 11-4116
- The Dog and the Water-lily, 7-2528
- Epitaph on a Hare, 7-2529
- God Moves in a Mysterious Way, 3-1141
- John Gilpin, 5-1639
- The Loss of the Royal George, 1-324
- Nightingale and Glow-worm, 2-606
- The Retired Cat, 5-1780

The Master of the People's Songs, 6-2135

Robert Burns.

- A Man's a Man for a' That, 12-4474
- Bannockburn, 2-738
- Bonnie Jean, 6-2246
- The Cotter's Saturday Night, 13-4597
- My Heart's in the Highlands, 4-1382
- A Red, Red Rose, 9-3274
- The Selkirk Grace, 12-4475
- To a Mountain Daisy, 14-5128
- To a Mouse, 3-1008

The Tellers of Tales, 6-2253

Samuel Richardson, Henry Fielding, Laurence Sterne, Tobias Smollett, Oliver Goldsmith, Fanny Burney, Horace Walpole, Mrs. Ann Radcliffe, Maria Edgeworth, Jane Austen.

Wordsworth and His Friends, 7-2353

Wordsworth, Samuel Taylor Coleridge, Robert Southey.

Wordsworth

- To a Skylark, 11-4034
- The Flight of Peter Bell, 12-4347
- The Kitten and the Falling Leaves, 14-4956
- The Reaper, 14-4954
- London, 1802, 12-4349
- Composed upon Westminster Bridge, 12-4350
- She Was a Phantom of Delight, 8-2903
- The Daffodils, 1-102
- To a Butterfly, 16-6024
- To a Butterfly, 6-2152
- March, 4-1384
- Lucy, 2-606
- The Rainbow, 2-607
- Lucy Gray, 3-1140
- The Pet Lamb, 6-2031
- To the Cuckoo, 6-2033
- To the Skylark, 7-2529
- Intimations of Immortality, 7-2633

Southey

- The Inchcape Rock, 7-2527
- Father William, 2-484
- The Battle of Blenheim, 2-483
- The Traveler's Return, 7-2527

Coleridge

- Answer to a Child's Question, 1-324
- A Child's Evening Prayer, 2-485
- The Good Great Man, 16-5867

Byron, Scott, Shelley and Keats, 7-2489

Byron

- The Eve of Waterloo, 8-2766
- She Walks in Beauty, 8-2903
- The Vision of Belshazzar, 7-2529

Scott

- Jock of Hazeldean, 3-847
- Sound Loud the Clarion, 8-2906
- Lullaby of an Infant Chief, 2-736
- Time, 11-4030
- Lochinvar, 12-4471
- Old Christmas, 17-6106
- The Last Charge of the French at Waterloo, 15-5522
- The Lay of the Last Minstrel, 17-6377

Shelley

- Lines to an Indian Air, 3-1142
- Autumn, 4-1515
- To the Moon, 2-489
- Ode to the West Wind, 11-4113
- The Skylark, 16-6021
- Night, 14-5240
- The Cloud, 18-6647

Keats

- La Belle Dame Sans Merci, 11-4112
- To Autumn, 1-325
- Ode to a Nightingale, 5-1886
- On First Looking into Chapman's Homer, 5-1645
- The Realm of Fancy, 6-2241
- Fairy Song, 2-606
- The Dove, 3-1142
- When I Have Fears, 3-1141

Scott and His Stories, 7-2625

- Waverley Novels, 11-4069

The Books of Dickens and Thackeray, 8-2731

Dickens

- David Copperfield, 8-2773
- The Old Man Named Scrooge, 17-6115

A Scene from Nicholas Nickleby, 16-5683

The Writers of Essays, 8-2865

Bacon, Steele, Addison, Goldsmith, Lamb, Hazlitt, Leigh Hunt,
De Quincey, Macaulay, Stevenson.

Carlyle and Ruskin, 9-3311

Ruskin, The King of the Golden River, 6-2221

The Historians, 9-3201

Clarendon, Gibbon, Macaulay, Gardiner, Green, Hallam, Stubbs,
Froude, Lingard.

The Fame of Alfred Tennyson, 10-3469

The Brook, 1-101

Death of the Old Year, 17-6109

O Swallow, Swallow, Flying South, 1-326

Selection from The Princess, 14-5131

The Reconciliation, 17-6378

Ring Out, Wild Bells, 17-6109

Sweet and Low, 1-322

In Memoriam, 12-4343

The Revenge, 13-4739

Crossing the Bar, 4-1382

The Deserted House, 10-3740

The Bugle, 8-2903

A Vision of the Future, 9-3276

Break, Break, Break, 6-2151

Tears, Idle Tears, 5-1779

The Charge of the Light Brigade, 5-1778

The Owl, 6-2153

Minnie and Winnie, 3-1009

A Cradle Song, 3-848

The Beggar Maid, 2-736

The Silent Voices, 4-1516

Sir Galahad, 3-1006

Mother, 4-1380

Come into the Garden, Maud, 4-1270

Ulysses, 18-6798

The Story of the Brownings, 10-3687

Robert Browning

All's Right with the World, 2-607

The Boy and the Angel, 13-4741

Home Thoughts from Abroad, 10-3736

Incident of the French Camp, 12-4350

The Last Ride Together, 9-3109

Life in a Love, 1-325

The Pied Piper of Hamelin, 1-224

Prospice, 3-1006

How They Brought the Good News from Ghent to Aix, 19-6867

Elizabeth Browning

A Woman's Shortcomings, 13-4743

A Child's Thought of God, 2-486

Sonnet, 15-5647

A Man's Requirements, 5-1646

A Musical Instrument, 5-1779

My Kate, 14-5241

The Poet and the Bird, 11-4033

The Sleep, 8-2765

The Sweetest Lives, 4-1380

A Valediction, 4-1380

The Weakest Thing, 7-2637

Great Fiction in Its Full Tide, 11-3891

Lytton, Disraeli, Charles Reade, Charles Kingsley, Charlotte Brontë, George Eliot, Anthony Trollope, George Meredith, Thomas Hardy, Mrs. Gaskell, George Macdonald, William Black, William Sharp, Stevenson, Barrie, Ian Maclaren, Crockett, Rider Haggard, Anthony Hope, Arthur Quiller-Couch, Conan Doyle, Seton Merriman, Hall Caine, William de Morgan, Mrs. Humphry Ward, Rudyard Kipling, Israel Zangwill, Eden Phillpotts.

Kingsley, *Westward Ho!* 14-5027

Stevenson, *Treasure Island*, 13-4645

Barrie

The Story of Peter Pan, 13-4659

The Branding of Tommy, 9-3239

Prose Writers of Our Time, 11-3999

John Morley, Andrew Lang, George Borrow, William Henry Hudson, Frank Bullen, Leslie Stephen, Thomas Henry Huxley, Charles Darwin, James Bryce, Sir Sidney Lee, Sir George Macaulay Trevelyan.

Victorian and Georgian Poets, 12-4227

Crabbe, Hogg, John Clare, Blake, Thomas Moore, Thomas Campbell, Macaulay, Mrs. Hemans, Walter Savage Landor, Thomas Hood, Swinburne, Dante Gabriel Rossetti, William Morris, Matthew Arnold, Arthur Hugh Clough, Robert Buchanan, Francis Thompson, Coventry Patmore, Charles Kingsley, Stevenson, Conan Doyle, George Macdonald, Newbolt, Sir Edwin Arnold, Jean Ingelow, Alice Meynell, W. E. Henley, Rudyard Kipling, Hardy, Sir William Watson, Alfred Austin, John Masefield, Alfred Noyes, Yeats, Walter de la Mare, A. E. Housman, Laurence Housman, John Drinkwater, Rupert Brooke, Siegfried Sassoon, Arthur O'Shaughnessy.

E. Arnold, *Armageddon*, 12-4348

Matthew Arnold

The Forsaken Merman, 8-3001

Shakespeare, 7-2365

Blake

- The Lamb, 2-606
- Night, 17-6376
- Nurse's Song, 3-847
- Piping Down the Valleys Wild, 8-2764
- Sleep, Beauty Bright, 3-848
- The Tiger, 3-1139

Buchanan

- The Coming of Spring, 11-4032
- Judas Iscariot, 14-5239

Brooke

- The Soldier, 12-4273

Supplementary Reading

- Rupert Brooke, 17-6393

Brown, My Garden, 18-6797

Campbell

- Battle of the Baltic, 3-1140
- Hohenlinden, 3-1009
- The Irish Harper, 10-3741
- Lord Ullin's Daughter, 2-737
- The Parrot, 4-1384
- Ye Mariners of England, 2-609

Clough, Say Not the Struggle Naught Availeth, 17-6380

Davis, Leisure, 9-3111

Dobson, In After Days, 7-2365

Conan Doyle

- The Blind Archer, 7-2526
- December's Snow, 8-3004
- A Parable, 11-4032
- The Song of the Bow, 9-3107

Gosse

- Apologia, 8-3004
- Blake, 8-2764
- The Charcoal-burner, 10-3739
- A Song for the New Year, 6-2243
- To Tusitala in Vailima, 10-3737
- With a Copy of Herrick, 12-4348

Graves

- The Bogie Man, 15-5527
- The Bus, 4-1519
- A Child's Evening Prayer, 2-611
- German Folk Songs, 7-2366

Hemans

- Casabianca, 4-1384
- The Homes of England, 3-845
- The Pilgrim Fathers, 16-6022

Henley

Invictus, 3-1142
England, My England, 7-2365
The Full Sea Rolls, 8-2764
When You Are Old, 16-5866

Hogg

Boy's Song, 2-607
Kilmeny, 16-5863
The Skylark, 3-1142

Hood

I Remember, I Remember, 3-845
November in England, 14-5130
Queen Mab, 3-1138
The Song of the Shirt, 16-5710

Ingelow

A Story of Life, 9-3276
Seven Times One, 14-4956

Kingsley

A Farewell, 1-102
The Lost Doll, 14-5129
The Sands of Dee, 1-322
The Three Fishers, 15-5522
Young and Old, 8-2906

Kipling

If, 6-2036
Recessional, 19-6872
The Overland Mail, 15-5524
Who Dies if England Live? 15-5422

Landor

Finis, 12-4474
No Truer Word, 9-3271
Winter, 17-6378

Macaulay

The Armada, 14-5127
How Horatius Kept the Bridge, 10-3639

Macdonald

Baby, 2-486
Better Things, 4-1383
Little White Lily, 17-6380
Over the Hill, 9-3270
The Wind and the Moon, 16-5711

A. Meynell

The Shepherdess, 16-6024
My Heart Shall Be Thy Garden, 16-5924

Thomas Moore

As Down in the Sunless Retreats, 6-2035

- A Canadian Boat-song, 15-5419
- The Last Rose of Summer, 16-5922
- The Minstrel Boy, 2-484
- She Is Far from the Land, 11-4115
- Sound the Loud Timbrel, 8-2764
- Believe Me, if All Those Endearing Young Charms, 17-6378

Morris

- The Day is Coming, 16-6024
- The Day of Days, 12-4475
- The Earthly Paradise, 9-3108

Newbolt

- Drake's Drum, 16-5924
- The Best School of All, 16-5711
- The Torch of Life, 8-3005

Newman, Lead, Kindly Light, 12-4435

Noyes, Slave and Emperor, 11-4111

O'Shaughnessy

- St. John the Baptist, 15-5647
- We Are the Dreamers of Dreams, 16-5709

Oxenham

- Diamond Dust, 9-3271
- Great-Heart, 8-3006
- What Can a Little Chap Do? 6-2036

Patmore, The Round of the Year, 12-4475

A. Procter, Pictures in the Fire, 2-738

Rossetti, D. G., The Blessed Damozel, 8-2904

Rossetti, C.

- Up-hill, 12-4472
- Goblin Market, 9-3103
- A Birthday, 4-1383

Sassoon, I Lived My Days Apart, 12-4234

Stevenson

- The Land of Nod, 3-1009
- Travel, 3-1136
- The Unseen Playmate, 2-608
- Armies in the Fire, 1-101
- The Epitaph, 8-2869
- My Shadow, 1-101
- Home No More Home to Me, 9-3110

Swinburne

- A Match, 8-3006
- Chorus from Atalanta in Calydon, 6-2243

F. Thompson, The Hound of Heaven, 8-2901

Van Dyke

- Rencontre, 11-4114
- God Sends Love to You, 14-4955

- The Three Best Things, 12-4272
Four Things, 8-2765
Watson, To My Mother's Memory, 9-3271



American Literature

American Literature in Colonial Times, 12-4445

John Smith, Robert Beverley, Colonel William Byrd, Roger Williams, Richard Mather, Cotton Mather, Thomas Hooker, Jonathan Edwards, Benjamin Franklin, John Dickinson, Thomas Paine, Alexander Hamilton, James Madison, John Jay.

American Literature to the Civil War: I, 13-4625

Charles Brockden Brown, Washington Irving, James Fenimore Cooper, William Gilmore Simms, Richard Henry Dana, Jr., Herman Melville, William Cullen Bryant, Philip Freneau, Fitz-Greene Halleck, Joseph Rodman Drake, Ralph Waldo Emerson, Margaret Fuller, Henry David Thoreau, Nathaniel Hawthorne.

Bryant

- An Indian at the Burial-place of His Fathers, 18-6650
Planting the Apple-tree, 18-6648
A Forest Hymn, 10-3741
Robert of Lincoln, 15-5523
To a Waterfowl, 17-6379
Truth Crushed to Earth, 14-5131
The Death of the Flowers, 18-6799

Emerson

- Borrowing, 16-6024
Concord Hymn, 11-4032
Good-bye, 6-2245
The Mountain and the Squirrel, 3-846
A Nation's Strength, 14-5129
The Snow-storm, 8-2906
The Test, 13-4743
Cooper, Last of the Mohicans, 1-267
Melville, Moby Dick, 15-5401
Dana, Two Years before the Mast, 9-3357
Irving, Rip Van Winkle, 12-4481
Drake, The Culprit Fay, 4-1271

American Literature to the Civil War: II, 13-4725

Poe, Longfellow, Holmes, Lowell, Whittier, Whitman, Harriet Beecher Stowe.

Poe

- The Bells, 16-6023
Israfel, 1-325

Annabel Lee, 2-489
The Raven, 18-6753
The Gold-Bug, 5-1899

Longfellow

The Arrow and the Song, 13-4744
The Baby and the Brook, 13-4600
The Bridge, 4-1515
The Builders, 12-4350
The Children's Hour, 14-4955
Excelsior, 2-609
The Happiest Land, 5-1780
Hiawatha's Brothers, 17-6378
Maidenhood, 14-5240
Nature, 14-5238
The Norman Baron, 17-6375
Paul Revere's Ride, 15-5649
A Psalm of Life, 2-484
The Ship of State, 3-846
Ships That Pass in the Night, 12-4473
Snow-flakes, 3-1141
Songs of Birds, 14-5131
The Three Kings, 18-6465
To the River Charles, 7-2638
The Village Blacksmith, 1-227
The Wreck of the Hesperus, 1-103

Holmes

Lord of All Being, 4-1514
Old Ironsides, 4-1380
The Two Armies, 6-2245
What the Stars Have Seen, 5-1888
The Wonderful One-Hoss Shay, 9-3269

Lowell

The Courtin', 16-5922
The Fatherland, 3-846
The Fountain, 2-607
An Incident in a Railroad Car, 9-3272
A Parable, 6-2245
The Present Crisis, 7-2525
A Stanza on Freedom, 16-5867
June (from The Vision of Sir Launfal), 4-1515

Whittier

The Red River Voyageur, 15-5420
At Last, 7-2637
Maud Muller, 16-5707
The Barefoot Boy, 4-1517

Whitman, O Captain, My Captain, 10-3736

American Literature, 1865-1900, 13-4815

Edward Everett Hale, Thomas Bailey Aldrich, John Banister Tabb, Sidney Lanier, Joel Chandler Harris, Benjamin Shillaber, Charles Farrar Browne, Maria Holley, Finley Peter Dunne, Mark Twain, William Dean Howells, Bret Harte, Sarah Orne Jewett, George Cable, Mary Wilkins Freeman, James Whitcomb Riley, Helen Hunt Jackson, Thomas Nelson Page, William Hickling Prescott, George Bancroft, John Lothrop Motley, Francis Parkman, John Fiske, Edward Eggleston, James Ford Rhodes, Silas Weir Mitchell, Mary Johnston, Lew Wallace.

Hale, *The Man without a Country*, 7-2401

Aldrich, *Memory*, 12-4348

Tabb

In Absence, 11-4114

Foot Soldiers, 11-4111

Lanier, *Into the Woods My Master Went*, 10-3740

Field

Wynken, Blynken and Nod, 1-98

Fiddle-dee-dee! 9-3272

Pittypat and Tippytoe, 10-3484

The Fly-away Horse, 11-4111

Good-Children Street, 9-3340

Poet and King, 12-4476

The Humming Top, 6-2150

Rock-a-by Lady, 18-6469

Inscription on a Silver Plate, 12-4473

The Shut-eye Train, 9-3108

Long Ago, 9-3108

Teeny-Weeny, 11-4036

Riley

The Land of Thus-and-So, 9-3274

A Life-lesson, 18-6755

Harte

The Heathen Chineese, 4-1381

Flynn of Virginia, 6-2244

Jackson, *Ramona*, 1-133

Lew Wallace, *Ben-Hur*, 10-3745

American Writers of the New Century, 14-5007

Owen Wister, Richard Harding Davis, Hamlin Garland, Francis Marion Crawford, Henry James, Edith Wharton, O. Henry, Emerson Hough, Stewart Edward White, Booth Tarkington, Dorothy Canfield, Margaret Deland, Joseph Lincoln, George Ade, Don Marquis, Ellen Glasgow, Zona Gale, Edna Ferber, Joseph Hergesheimer, Theodore Dreiser, Sinclair Lewis, Henry Sydnor Harrison, Christopher Morley, George Santayana, Edwin Markham, Edgar Lee Masters, Amy Lowell, Edwin Arlington Robinson, Peter Parley,

Jacob Abbott, William Taylor Adams, Susan Warner, Horatio Alger, Louisa May Alcott, Mrs. Peebles, Mary Mapes Dodge, Francis Hodgson Burnett, Howard Pyle, Kate Douglas Wiggin, Joseph A. Altsheler.

Markham

Lincoln, the Man of the People, 5-1645

The Man with the Hoe, 8-3003

Preparedness, 8-3006

Masters, Ann Rutledge, 4-1514

Pyle, The Fruit of Happiness, 11-3832

Kilmer, Trees, 12-4271



Canadian Literature

Canada's Poets and Prose Writers: I, 14-5103

Michel Bibaud, François Xavier Garneau, Joseph Lenoir, Abbé Ferland, Thomas Chandler Haliburton, Mrs. Traill, Mrs. Moodie, John Richardson, Mrs. Leprohon, Charles Sangster, Charles Heavysege, Charles Mair, Isabella Crawford, Charles G. D. Roberts, William Carman Roberts, Theodore Goodrich Roberts, Mrs. Macdonald, Bliss Carman, Archibald Lampman, W. W. Campbell, William H. Drummond, Duncan Campbell Scott, Frederick George Scott, Robert W. Service, John McCrae, Pauline Johnson, Beatrice Redpath, Mrs. Isabel Mackay, Marjorie Pickthall, Octave Crémazie, Louis Fréchette.

Haliburton, Sam Slick, 10-3527

Mrs. Moodie, Roughing It in the Bush, 16-5901

Richardson, Wacousta, 9-3141

Sangster

The Plains of Abraham, 10-3482

The Rapid, 15-5421

Roberts, C. G. D., On the Road, 11-4114

Roberts, Theodore G.

Love and the Young Knight, 10-3484

The Hamadryad, 10-3484

Mrs. Macdonald, A Secret Song, 8-2902

Bliss Carman

At Twilight, 11-4114

We Are the Roadside Flowers, 17-6282

The Gift, 19-6991

Lampman, Hepaticas, 15-5422

Drummond

De Bell of St. Michel, 10-3483

Ole Tam on Bord-a-Plouffe, 10-3479

Scott, D. C., *Off Rivière du Loup*, 10-3481

Scott, F. G.

A Hymn of Empire, 10-3483

The Colors of the Flag, 10-3482

The River, 10-3481

The Warders, 9-3271

Quebec, 12-4475

The Unnamed Lake, 15-5419

O Canada, 17-6256

Service, *The Mounted Police*, 15-5421

McCrae, *In Flanders Fields*, 16-5924

Johnson

Harvest Time, 15-5421

Prairie Greyhounds, 10-3480

The Song My Paddle Sings, 15-5419

Canada's Poets and Prose Writers: II, 15-5367

Louis Hémon, Abbé Casgrain, George Bryce, Beckles Willson, George M. Wrong, Joseph Pope, Oscar D. Skelton, Pelham Edgar, W. S. Wallace, Marjory MacMurchy, William Kirby, James De Mille, Sir Gilbert Parker, Agnes Laut, Ralph Connor, H. A. Cody, Madge Macbeth, Martha Ostenso, Arthur Stringer, Sara Jeanette Duncan, L. M. Montgomery, Nellie McClung, J. G. Sime, Norman Duncan, Stephen Leacock, Peter McArthur, Ernest Thompson-Seton, Marshall Saunders, Cyrus MacMillan, Ray Palmer Baker, and others.



Eastern Literature

The Literatures of the East, 15-5459

Short sketches of Chinese, Japanese, Sanskrit, Babylonian and Assyrian, Persian, Egyptian, Arabic and Hebrew literatures.

Greek Literature

The Literature of Greece, 16-5747

Homer, Hesiod, Sappho, Xenophanes, Simonides, Pindar, Herodotus, Thucydides, Æschylus, Sophocles, Euripides, Aristophanes.

The Story of the Iliad, 6-1983

The Story of the Odyssey, 6-1984

Tennyson's Ulysses, 18-6798

Roman Literature

The Literature of Rome, 16-5907

Livius Andronicus, Nævius, Ennius, Plautus, Terence, Lucilius, Cato, Lucretius, Catullus, Cicero, Virgil, Horace, Ovid, Livy, Seneca, Pliny, Tacitus, Juvenal.

Virgil, The Story of the Æneid, 6-1986
The First Great Men of Rome, 4-1361



Italian Literature

The Literature of Italy, 17-6149

Dante, Petrarch, Boccaccio, Tasso, Goldoni, Alfieri, Manzoni and d'Annunzio.

Mercantini, Garibaldi's Hymn, 17-6252

German Literature

The Literature of Germany: I, 17-6265

The Nibelungenlied, Walter von der Vogelweide, Luther, Hans Sachs, Jacob Böhme, Grimmeishausen, Lessing, Herder, Von Kleist, Uhland.

Uhland, The Castle by the Sea, 19-6988

The Literature of Germany: II, 17-6409

Grillparzer, Immermann, Goethe, Schiller, Heine, the Brothers Grimm, Hebbel, Freytag, Nietzsche.

Raspe, Adventures of Baron Munchausen, 4-1421

Goethe

The Erl-King, 19-6988

Haste Not, Rest Not, 4-1381

Rest, 19-6988

The Wild Rose, 19-6987

Heine

The Lorelei, 6-2035

The Pretty Fisher Maiden, 19-6987

To My Sister, 19-6987

Müller, Whither? 19-6987

Krummacher, The Moss Rose, 19-6987

Schneckenburger, Die Wacht am Rhein, 17-6254

The Grimm Brothers, 9-3194

French Literature

The Literature of France: I, 18-6559

The Song of Roland and other epics of the Middle Ages, The Tale of Reynard, The Romance of the Rose, Villehardouin, Joinville, Froissart, De Commynes, François Villon, Rabelais, Calvin, Marot, Ronsard, Montaigne.

The Adventures of Reynard, 8-2965

Ronsard, Welcome to Spring, 7-2364

The Literature of France: II, 18-6711

Boileau, Corneille, Racine, Molière, La Fontaine, Descartes, Pascal, Bossuet, Fénelon, Bayle, Diderot, D'Alembert, Rousseau, Beaumarchais, Rouget de Lisle, Châteaubriand, Auguste Comte, Lamartine, Gautier, Béranger, Victor Hugo, George Sand, Balzac, Prosper Mérimée, Alphonse Daudet, Thierry, Guizot, Anatole France.

La Fontaine, The Castle-builder, 12-4270

De Lisle, Marseillaise, 12-4472

Jenneval, La Brabançonne, 17-6253

Béranger

The Gadfly, 18-6717

The Grandmother's Tale, 16-5921

Hugo, The Stream and the Ocean, 10-3741

Daudet

The Game of Billiards, 4-1528

The Last Class, 19-7220

Bourdillon, Light, 17-6378

Russian Literature

The Literature of Russia, 19-6905

Polotsky, Lomonosov, Derzhavin, Radistchev, Novikov, Karamzin, Krylov, Griboyedov, Zhukovski, Pushkin, Lermontov, Koltsov, Nekrasov, Tolstoy, Belinsky, Saltykov, Gogol, Turgenev, Dostoevski.

Scandinavian Literature

The Literature of Scandinavia, 19-7009

Danish

The Sagas, Holberg, Tullin, Ewald, Wessel, Baggesen, Öhlenschläger, Hans Andersen, Dr. Georg Brandes.

Hans Andersen, 9-3194

Norwegian

Wergeland, Vinje, Garborg, Welhaven, Ibsen, Björnson, Jonas Lie, Knut Hamsun.

Swedish

Von Dalin, Tegner, Miss Bremer, Runeberg, Lönnrot, Strindberg, Ellen Key, Selma Lagerlöf.

Runeberg, Our Land, Our Land, Our Fatherland, 17-6252

Selma Lagerlöf, The School Examination, 13-4753

Bjerregaard, Sons of Dear Norway, 17-6253

Strindberg, Swedish National Hymn, 17-6253

Spanish and Portuguese Literature

The Literature of Spain and Portugal, 19-7125

The Cid, Amadis, Mendosa, Cervantes, Calderón, Lope de Vega, Camoëns.

Cervantes, Don Quixote, 5-1629

Poetry

The Poetry in the Guide is arranged by subjects. A poem will sometimes be found in more than one division. In Memoriam, for example, is found under Poems of Love and Friendship and also under Poems of Immortality, as it belongs to both. There may be a difference of opinion in regard to some of the poems, which is often the case in classified collections depending solely upon the judgment or sentiment of one person. For songs and quotations from Shakespeare see **Shakespeare** in the Poetry Index.

A series of twelve articles telling what poetry is, explaining the different kinds of verse, and how to read and remember poetry, will be found under the following titles:

- Poetry the Music of Words, 1-99
- The Different Kinds of Verse, 1-223
- The Earliest English Poetry, 1-321
- Why Should We Read Poetry? 2-481
- How to Read Poetry, 2-605
- How to Remember Poetry, 2-735
- The Poets and Childhood, 3-843
- Poetry of Youth and Manhood, 3-1005
- The Poetry of Action, 3-1135
- The Poetry of Common Things, 4-1269
- Our Feelings in Poetry, 4-1379
- The Poetry of Nature, 4-1513

Poems of Childhood

- | | |
|-----------------------------------|------------------------------------|
| All the Children, 9-3276 | Dobbin's Friend, 5-1887 |
| Armies in the Fire, 1-101 | Epitaph on a Hare, 7-2529 |
| The Arming of Pigwiggen, 3-847 | The Fairies, 2-485 |
| Baby, 2-486 | The Fairy Tempter, 8-2906 |
| The Baby and the Brook, 13-4600 | Fiddle-dee-dee, 9-3272 |
| Babyland, 16-5923 | The Flowers, 6-2244 |
| Babyland, 17-6379 | The Fly-away Horse, 11-4111 |
| Big and Little Things, 7-2638 | Foot Soldiers, 11-4111 |
| The Blind Boy, 3-1007 | The Frolic of Johnny the Stout, |
| A Boy's Thanksgiving, 5-2152 | 5-1884 |
| The Buckle, 7-2365 | The Frost Looked Forth, 6-2148 |
| The Burial of the Linnet, 14-4956 | Goblin Market, 9-3103 |
| The Butterfly's Ball, 3-1008 | Good-Children Street, 9-3340 |
| The Butterfly's Funeral, 10-3644 | Good Night, 1-324 |
| Cher Ami, D.S.C., 6-2151 | The Greedy Boy, 3-844 |
| A Child's Evening Prayer, 2-485 | Happiness, 7-2637 |
| A Child's Thought of God, 2-486 | He Comes in the Night, 17-6111 |
| The Child's Wish in June, 4-1383 | Here a Little Child I Stand, 2-488 |
| Cuddle Doon, 11-4116 | How to Write a Letter, 14-4955 |

- The Humming Top, 6-2150
 The Kitten and the Falling Leaves, 14-4956
 The Lamb, 2-606
 The Land of Nod, 3-1009
 The Land of Thus-and-So, 9-3274
 The Laughing Brook, 6-2153
 The Little Star, 3-1138
 Little White Lily, 17-6380
 The Lost Doll, 14-5129
 The Man Who Is Twelve Years Old, 8-2765
 Minnie and Winnie, 3-1009
 Mother's Kisses, 3-1139
 Mother's World, 5-1645
 The Mouse and the Cake, 13-4743
 My Menagerie, 4-1516
 My Mother, 2-736
 My Shadow, 1-101
 The North Wind, 3-1138
 O Mammy's Pickaninny, 19-6873
 Oh, Look at the Moon, 7-2364
 Only a Baby Small, 5-1887
 Over the Hill, 9-3270
 The Pet Lamb, 6-2031
 Pittypat and Tippytoe, 10-3484
 Queen Mab, 3-1138
 Rock-a-by Lady, 18-6469
 Seven Times One, 14-4956
 The Shut-eye Train, 9-3108
 The Sun, 16-5923
 Suppose the Little Cowslip, 6-2246
 Teeny-Weeny, 11-4036
 The Tiger, 3-1139
 Travel, 3-1136
 Under My Window, 5-1646
 The Unseen Playmate, 2-608
 The Voice of the Grass, 6-2153
 A Walk in Spring, 9-3111
 Wee Willie Winkie, 2-736
 Weighing the Baby, 5-1780
 What Might Have Been, 5-1888
 What Robbie Would Like, 12-4270
 Who Can This Somebody Be? 2-482
 Why It Was Cold in May, 11-4033
 Willie's Lodger, 5-1888
 The Wind in a Frolic, 1-228
 Wishing, 3-1007
 Wynken, Blynken and Nod, 1-98
 The Young Mouse, 3-844

Poems of Love and Friendship

- Ann Rutledge, 4-1514
 Annabel Lee, 2-489
 Blake, 8-2764
 The Blessed Damsel, 8-2904
 Bonnie Jean, 6-2246
 Cherry Ripe, 8-3002
 Come into the Garden, Maud, 4-1270
 December's Snow, 8-3004
 A Dedication, 11-4032
 Diamond Dust, 9-3271
 Disdain Returned, 9-3110
 Douglas, Douglas, Tender and True, 6-2034
 Envoy, 11-4030
 Fairy Song, 2-606
 Farewell, 16-5924
 A Father's Blessing, 19-6873
 The Hamadryad, 10-3484
 Heraclitus, 8-3004
 How Many Times? 10-3644
 I Traveled among Unknown Men, 18-6467
 In Absence, 11-4114
 In Memoriam, 12-4343
 An Incident in a Railroad Car, 9-3272
 Jenny Kissed Me, 19-6991
 La Belle Dame Sans Merci, 11-4112
 The Last Ride Together, 9-3109
 Life in a Love, 1-325
 Love and Friendship, 19-6872
 Love in Tears, 14-5241
 The Love Knot, 4-1518
 The Lover's Resolution, 17-6376
 Love's Reasonings, 11-4033
 Lucy, 2-606
 A Man's Requirements, 5-1646
 A Match, 8-3006
 The Mother to Her Infant, 8-2906
 My Heart Shall Be Thy Garden, 16-5924
 My Kate, 14-5241
 My Old Friend, 12-4271
 My Playmate, 18-6466
 The Nymph's Reply to the Passionate Shepherd, 9-3339
 O Captain! My Captain! 10-3736
 Old Friends, 17-6378
 Omission, 19-6872
 On Sir Philip Sidney, 11-4029
 One of Us Two, 18-6651
 Orsames' Song, 17-6376
 The Passionate Shepherd, 9-3274
 The Pretty Fisher Maiden, 19-6987

Rencontre, 11-4114
 The Rose, 19-6874
 Rubies and Pearls, 16-5708
 She Walks in Beauty, 8-2903
 She Was a Phantom of Delight,
 8-2903
 The Shepherdess, 16-6024
 A Sigh, 18-6468
 Since We Parted, 18-6651
 The Traveler's Return, 7-2527

Three Years She Grew, 18-6467
 To Althea from Prison, 16-5708
 To Anthea, 19-6991
 To Lucasta, on Going to the Wars,
 17-6376
 To Thomas Moore, 19-6989
 To Tusitala in Vailima, 10-3737
 A Valediction, 4-1380
 With a Copy of Herrick, 12-4348
 A Woman's Shortcomings, 13-4743

Poems of Sentiment and Reflection

Aladdin, 18-6468
 All Things Shall Pass Away, 1-323
 Amends to Nature, 8-3004
 Apologia, 8-3004
 The Arctic Indian's Faith, 10-3481
 Armageddon, 12-4348
 As Down in the Sunless Retreats,
 6-2035
 Be Patient with the Children,
 14-5240
 Birds, 8-2764
 Borrowing, 16-6024
 Break! Break! Break! 6-2151
 The Caged Bird, 12-4270
 The Cane-bottomed Chair, 8-2763
 The Children's Hour, 14-4955
 Chorus from Atalanta in Calydon,
 6-2243
 Common Things, 13-4744
 The Country Faith, 6-2036
 The Cry of the Dreamer, 12-4473
 The Day of Days, 12-4475
 De Bell of St. Michel, 10-3483
 Death of the Old Year, 17-6109
 Each in His Own Tongue, 4-1514
 The Earth and Man, 12-4476
 The Earthly Paradise, 9-3108
 Faith, 16-5924
 The Fatherland, 3-846
 Finis, 12-4474
 Fleet Street, 13-4600
 The Flight of the Arrow, 15-5866
 The Flight of Youth, 18-6650
 For Those Who Fail, 12-4476
 The Gift, 19-6991
 Good-bye, 6-2245
 Gray's Elegy, 9-3337
 Great Nature Is an Army Gay,
 14-5130
 The Heavens in London Town,
 10-3737
 Home No More Home to Me,
 9-3110

Home Thoughts in Laventie, 12-4271
 I Heard a Soldier, 3-1139
 I Saw a New World, 19-6870
 If We Had but a Day, 8-2903
 Il Penseroso, 1-327
 In After Days, 7-2365
 In the Making, 12-4475
 Invictus, 3-1142
 The Irish Harper, 10-3741
 The Isle of Long Ago, 16-5709
 It Is Common, 9-3276
 L'Allegro, 1-327
 Late Leaves, 19-6992
 A Life-lesson, 18-6755
 Long Ago, 9-3108
 Love and the Young Knight, 10-3484
 The Man with the Hoe, 8-3003
 A Man's a Man for A' That, 12-4474
 The Men of Old, 14-5129
 Memories, 19-6989
 A Memory, 8-3006
 Memory, 12-4348
 Mother, 4-1380
 My Garden, 18-6797
 My House, 6-2242
 My Mind to Me a Kingdom Is,
 9-3339
 My Mother's Hands, 5-1646
 My Ships, 5-1778
 My Will, 10-3740
 A Name in the Sand, 13-4742
 A Nation's Strength, 14-5129
 Nightingale and Glow-worm, 2-606
 Ode to a Nightingale, 5-1886
 The Officer's Grave, 5-1781
 The Old Familiar Faces, 10-4115
 On the Death of Joseph Rodman
 Drake, 3-1142
 On the Road, 11-4114
 A Parable, 6-2245
 Pictures in the Fire, 2-738
 Poet and King, 12-4476
 The Poet and the Bird, 11-4033

- The Princess, 14-5131
Prospice, 3-1006
The Pulley, 1-323
Rain on the Roof, 11-4034
The Rainbow, 9-3107
The Raven, 18-6753
Rose and Root, 12-4348
Say Not, the Struggle Naught Avail-
eth, 17-6380
The Seed Shop, 14-5129
The Selkirk Grace, 12-4475
Ships That Pass in the Night,
12-4473
Shuffle-Shoon and Amber-Locks,
19-6993
The Silent Voices, 4-1516
Slave and Emperor, 11-4111
So Live, 6-2036
Sometimes, 10-3740
A Song for the New Year, 6-2243
The Song of the Shirt, 16-5710
Songs of Birds, 14-5131
Sorrow, 14-5130
A Story of Life, 9-3276
Sudden Light, 19-6989
Tears, Idle Tears, 5-1779
A Ternarie of Littles, 17-6379
The Test, 13-4743
The Threshold, 19-6989
Time, 11-4030
To a Butterfly, 6-2152
To a Butterfly, 16-6024
To a Skylark, 11-4034
To Alfred Laliberté, 10-3483
To My Mother's Memory, 9-3271
To the Cuckoo, 6-2033
To the Moon, 2-489
To the River Charles, 7-2638
To the Skylark, 7-2529
True Growth, 3-847
The Two Armies, 6-2245
Two Men, 11-4033
Unkindness, 17-6379
Up-hill, 12-4472
A Vision of the Future, 9-3276
Waiting, 6-2244
The Warders, 9-3271
We Are the Dreamers of Dreams,
16-5709
The Weakest Thing, 7-2637
When Summer Comes, 15-5418
While We May, 19-6872
Whither? 19-6987
Woodman, Spare That Tree, 1-326
The Worm, 3-847
Young and Old, 8-2906

The Conduct of Life

- Beati Illi, 14-5131
Beautiful Things, 12-4270
Better Things, 4-1383
The Blame, 10-3738
The Builders, 12-4350
The Castle-builder, 12-4270
The Character of a Happy Life,
13-4599
Common Natures, 11-4116
The Day Is Coming, 16-6024
A Deed and a Word, 12-4474
The End of Life, 3-1007
A Farewell, 1-102
Father William, 2-484
The Fool's Prayer, 2-488
Four Things, 8-2765
Give Us Men, 18-6797
The Good Great Man, 16-5867
Great-Heart, 8-3006
Haste Not! Rest Not! 4-1381
I Am, 4-1514
If, 6-2036
Inscription on a Silver Plate,
12-4473
Leisure, 9-3111
The Lesson of the Water Mill,
12-4473
The Little Busy Bee, 2-484
Love, Death and Reputation, 19-6989
O World, Be Nobler, 12-4472
Opportunity, 2-488
The Pilgrim, 9-3338
Preparedness, 8-3006
A Psalm of Life, 2-484
The Sluggard, 2-606
Speak Gently, 18-6755
The Sweetest Lives, 4-1380
There's Room at the Top, 16-5923
Things That Never Die, 5-1887
The Three Best Things, 12-4272
The Torch of Life, 8-3005
True Greatness, 5-1887
Try Again, 14-4956
What Can a Little Chap Do? 6-2036
What Does It Matter? 11-4033
What I Live For, 9-3274
Wishing, 7-2528
Work, 10-3480
You Can Never Tell, 6-2150

Songs and Lyrics

- All's Right with the World, 2-607
 The Angels' Whisper, 16-5710
 Annie Laurie, 1-326
 The Arrow and the Song, 13-4744
 Auld Lang Syne, 17-6380
 Bannockburn, 2-738
 The Bargain, 19-6991
 Bedouin Song, 9-3270
 Believe Me, if All Those Endearing
 Young Charms, 17-6378
 The Best School of All, 16-5711
 A Birthday, 4-1383
 Boy's Song, 2-607
 The Bugle, 8-2903
 A Canadian Boat-song, 15-5419
 The Canadian Boat Song, 9-3271
 Coronach, 9-3111
 Counsel to Girls, 5-1779
 A Cradle Song, 3-848
 A Cradle Song, 14-5241
 The Dance of the Flowers, 7-2366
 Fair Daffodils, 7-2527
 The Fairy Life, 6-2152
 A Fairy Lullaby, 6-2153
 A Gaelic Lullaby, 10-3480
 Give a Man a Horse He Can Ride,
 2-489
 God Only Knows, 7-2366
 God Sends Love to You, 14-4955
 Good-night, Good-night! 3-1009
 The Great Adventurer, 8-2767
 Hepaticas, 15-5422
 The Hills of Skye, 10-3480
 Hunting Song, 6-2153
 Jealous Jack Frost, 17-6108
 Jock of Hazeldean, 3-847
 John Anderson, 18-6798
 Kathleen Mavourneen, 1-326
 The Lark, 8-3002
 The Last Rose of Summer, 16-5922
 A Life on the Ocean Wave, 4-1383
 A Life-lesson, 18-6755
 Light, 17-6378
 Lines to an Indian Air, 3-1142
 A Lover and His Lass (with music),
 11-3935
 Lullaby! O Lullaby! 13-4600
 Lullaby of an Infant Chief, 2-736
 Massa's in de Cold, Cold Ground,
 8-2764
 The Minstrel Boy, 2-484
 Miss Poppy, 6-2244
 My Heart's in the Highlands, 4-1382
 My Maryland, 15-5524
 My Old Kentucky Home, Good-
 night, 8-3002
 Nurse's Song, 3-847
 O Swallow, Swallow, Flying South,
 1-326
 O Sweet Content, 9-3339
 O, Willow, Willow (with music),
 11-3936
 Oft in the Stilly Night, 19-6992
 Oh! Boys, Carry Me 'Long, 4-1516
 Old Folks at Home, 4-1380
 Orpheus and His Lute, 8-3004
 The Owl, 6-2153
 A Piper, 9-3110
 Piping down the Valleys Wild,
 8-2764
 Queen Mab and Her Fairies, 7-2636
 The Rapid, 15-5421
 The Reconciliation, 17-6378
 A Red, Red Rose, 9-3274
 Sally in Our Alley, 6-2151
 Serenade, 19-6990
 She Is Far from the Land, 11-4115
 Sigh No More, Ladies, 9-3399
 Sleep, Baby, Sleep, 14-5238
 Sleep, Beauty Bright, 3-848
 A Song for St. Cecilia's Day, 4-1270
 The Song My Paddle Sings, 15-5419
 Song of My Heart, 7-2366
 The Song of the Bow, 9-3107
 A Song of the Camp, 6-2034
 Song of the Golden Sea, 15-5421
 The Song of the Two Hares, 7-2366
 Sweet and Low, 1-322
 There's a Good Time Coming,
 7-2637
 The Three Fishers, 15-5522
 To Celia, 2-489
 Tom Bowling, 5-1781
 Under the Greenwood Tree, 6-2152
 The Useful Plough, 4-1384
 Were I a Birdie Too, 7-2366
 The White Hart (with music),
 19-6984
 Who Is Sylvia? (with music),
 11-3934
 The Wild Rose, 19-6987
 A Winter Song, 6-2152

Old Favorites

- Alexander Selkirk, 19-6871
 Arab's Farewell to His Steed, 2-608
 The Barefoot Boy, 4-1517
 The Bells of Shandon, 14-5238
 The Bridge, 4-1515
 Casabianca, 4-1384
 The Charge of the Light Brigade, 5-1778
 The Courtin', 16-5922
 The Curfew Bell, 7-2363
 The Day Is Done, 18-6468
 Excelsior, 2-609
 Home Sweet Home, 1-322
 How Horatius Kept the Bridge, 10-3639
 I Remember, I Remember, 3-845
 King Bruce and the Spider, 15-5521
 Life, 18-6651
 The Little Busy Bee, 2-484
 Little Things, 3-1007
 Lochinvar, 12-4471
 Lord Ullin's Daughter, 2-737
 Marco Bozzaris, 8-2765
 The Old Arm-chair, 4-1516
 Old Folks at Home, 4-1380
 Paul Revere's Ride, 15-5649
 The Pilgrim Fathers, 16-6022
 A Psalm of Life, 2-484
 Rest, 19-6988
 Seven Times One, 14-4956
 Somebody's Mother, 18-6649
 Sound Loud the Clarion, 8-2906
 Speak Gently, 18-6755
 The Spider and the Fly, 12-4269
 A Stanza on Freedom, 16-5867
 Thanksgiving Day, 19-6873
 Try Again, 14-4956
 The Village Blacksmith, 1-227
 A Visit from St. Nicholas, 4-1517
 The Wonderful One-Hoss Shay, 9-3269
 The Wreck of the Hesperus, 1-103

Patriotic Poems

- The American Flag, 6-2034
 The Blue and the Gray, 10-3643
 Canada, 9-3109
 The Colors of the Flag, 10-3482
 Columbia, the Gem of the Ocean, 17-6250
 Dirge of a Soldier, 3-1006
 Dixie, 17-6250
 Drake's Drum, 16-5924
 England, My England, 7-2365
 The Flag, 15-5650
 Flag Day, 15-5650
 For the Fallen, 12-4272
 Hail, Columbia, 5-1645
 Hear, O Ye Nations, 17-6256
 A Hymn of Empire, 10-3483
 La Brabançonne, 17-6253
 Land of Hope and Glory, 6-2150
 Little Giffen, 6-2242
 The Maple Leaf Forever, 19-6874
 My Maryland, 15-5524
 The Naturalized Alien, 15-5650
 Our Norland, 15-5417
 Rule, Britannia! 2-486
 The Ship of State, 3-846
 The Soldier, 12-4273
 A Stanza on Freedom, 16-5867
 Warren's Address to the American Soldiers, 19-6990
 The Wearin' o' the Green, 17-6256
 We'll Ha'e Nane but Highland Bonnets Here, 17-6254
 When the Call Is Sounded, 15-5650
 Who Dies if England Live? 15-5422
 Yankee Doodle, 17-6250
 Ye Mariners of England, 2-609

National Hymns

- America, the Beautiful, 17-6251
 Austrian National Anthem, 17-6251
 Battle-hymn of the Republic, 17-6251
 Chant National (Canada), 17-6256
 Die Wacht am Rhein, 17-6254
 Garibaldi's Hymn (Italy), 17-6252
 God Save the King, 18-6651
 Hymn of Free Russia, 17-6253
 Hymn to Liberty (Armenia), 17-6253
 Hymn to Liberty (Greece), 17-6255
 Japanese National Anthem, 17-6254
 Jecze Polska (Poland), 17-6256
 Kong Christian Stod Ved Hiern Mast (Denmark), 17-6252

- | | |
|---|--|
| March of the Men of Harlech
(Wales), 17-6254 | The Star-Spangled Banner,
17-6249 |
| The Marseillaise, 12-4472 | Swiss National Hymn, 17-6255 |
| Mexican National Hymn, 17-6255 | Trasca Regele (Rumania),
17-6253 |
| My Country, 'Tis of Thee, 17-6251 | Ur Svenska Hjertans (Sweden),
17-6253 |
| O Canada! 17-6256 | Vart Land (Finland), 17-6252 |
| Portuguese National Hymn, 17-6254 | Wien Neerlansch (Holland),
17-6252 |
| Serbian National Hymn, 17-6255 | |
| Sonner Af Norge (Norway),
17-6253 | |

Historical Poems

- | | |
|--|---|
| The Armada: a Fragment, 14-5127 | Incident of the French Camp,
12-4350 |
| Babylon, 8-3005 | Independence Bell, 15-5648 |
| The Ballad of Agincourt, 5-1885 | Jacques Cartier, 15-5418 |
| The Battle of Blenheim, 2-483 | The Last Charge of the French at
Waterloo, 15-5522 |
| Battle of the Baltic, 3-1140 | The Loss of the Royal George,
1-324 |
| The Bivouac of the Dead, 8-2767 | Marco Bozzaris, 8-2765 |
| Boadicea, 1-322 | Nathan Hale, 4-1381 |
| The Burial of Moses, 14-5237 | The Norman Baron, 17-6375 |
| The Burial of Sir John Moore, 2-607 | Old Ironsides, 4-1380 |
| The Charge of the Light Brigade,
5-1778 | On the Late Massacre in Piemont,
1-328 |
| Columbus, 2-485 | Paul Revere's Ride, 15-5649 |
| Concord Hymn, 11-4032 | Paulinus and Edwin, 6-2246 |
| The Death of Napoleon, 19-6868 | The Pilgrim Fathers, 16-6022 |
| Destruction of Sennacherib, 19-6990 | The Plains of Abraham, 10-3482 |
| The Eve of Waterloo, 8-2766 | The Present Crisis, 7-2525 |
| Farragut, 10-3643 | The Revenge, 13-4739 |
| For Justice, 15-5422 | Sheridan's Ride, 19-6868 |
| Henry Hudson's Last Voyage,
11-4109 | Song of Marion's Men, 11-4032 |
| Hohenlinden, 3-1009 | Sound the Loud Timbrel, 8-2764 |
| Holyrood, 16-6022 | The Vision of Belshazzar, 7-2529 |
| How Horatius Kept the Bridge,
10-3639 | William the Conqueror, 8-2903 |

Descriptive Poetry

- | | |
|---|--|
| Afar in the Desert, 6-2035 | The Homes of England, 3-845 |
| The Argument of His Book, 1-328 | An Indian at the Burial-place of His
Fathers, 18-6650 |
| At Sea, 14-5128 | Lincoln, the Man of the People,
5-1645 |
| At Twilight, 11-4114 | Maidenhood, 14-5240 |
| The Bells, 16-6023 | Mine Host of the "Golden Apple,"
7-2364 |
| The Bravest Battle That Ever Was
Fought, 12-4474 | The Mounted Police, 15-5421 |
| The Castle by the Sea, 19-6988 | Nearing the Snow-line, 19-6874 |
| The Charcoal-burner, 10-3739 | Night, 14-5240 |
| The Cotter's Saturday Night,
13-4597 | Night, 17-6376 |
| The Deserted Village, 15-5645 | November in England, 14-5130 |
| The Dove, 3-1142 | Off Rivière du Loup, 10-3481 |
| The Fisherman, 4-1384 | Ole Tam on Bord-a Plouffe, 10-3479 |
| Harvest Time, 15-5421 | |

The Overland Mail, 15-5524
The Patriot, 18-6799
Piper, Play! 6-2242
Prairie Greyhounds, 10-3480
Quebec, 12-4475
The Realm of Fancy, 6-2241
The Reaper, 14-4954
The Red River Voyageur, 15-5420

A Royal Race, 10-3481
The Snow-storm, 8-2906
The Tide Rises, the Tide Falls,
18-6467
To My Sister, 19-6987
The Unnamed Lake, 15-5419
What the Stars Have Seen, 5-1888
Wish, 3-846

Nature Poems

Answer to a Child's Question, 1-324
The Apple Winds, 18-6651
Autumn, 4-1515
Birds in Summer, 13-4744
The Brook, 1-101
Buttercups and Daisies, 1-325
The Canadian Song-Sparrow,
10-3482
The Cloud, 18-6647
The Coming of Spring, 11-4032
The Crocus, 12-4472
The Daffodils, 1-102
A Daisy at Christmas, 18-6468
Daybreak, 19-6991
The Death of the Flowers, 18-6799
December, 15-5422
A Forest Hymn, 10-3741
The Fountain, 2-607
The Full Sea Rolls, 8-2764
Hiawatha's Brothers, 17-6378
Home Thoughts from Abroad,
10-3736
The Horned Owl, 15-5523
The Housekeeper, 18-6754
The Industry of Animals, 17-6380
The Ivy Green, 10-3741
June, 4-1515
The Leaves and the Wind, 19-6990
March, 4-1384
March, 15-5422
May, 15-5422
The Moss Rose, 19-6987
October, 15-5422

Ode to the West Wind, 11-4113
Planting the Apple-tree, 18-6648
Rain in Summer, 18-6649
The Rainbow, 2-607
The Return of the Goldfinches,
10-3738
The River, 10-3481
Robert of Lincoln, 15-5523
Robin Redbreast, 1-324
The Round of the Year, 12-4475
The Sea, 19-6871
A Secret Song, 8-2902
The Shepherd's Cot, 3-1007
The Skylark, 3-1142
The Skylark, 16-6021
Snow-flakes, 3-1141
The Stars, 2-609
The Stormy Petrel, 14-5130
A Summer's Day, 10-3644
Talking in Their Sleep, 9-3111
The Tide River, 5-1646
The Tiger, 3-1139
To a Mountain Daisy, 14-5128
To a Mouse, 3-1008
To a Waterfowl, 17-6379
To Autumn, 1-325
To the Fringed Gentian, 19-6874
To the Nightingale, 14-5238
Trees, 12-4271
The Violet, 2-489
Welcome to Spring, 7-2364
Winter, 17-6378
The World, 2-738

Religious Poetry

Abide with Me, 12-4349
All Things Bright and Beautiful,
12-4273
Angels Holy, High and Lowly,
10-3739
At Last, 7-2637
Before Action, 10-3738
Blessed Are They That Mourn,
19-6873

Concord Hymn, 11-4032
The Day Thou Gavest, 6-2243
The Elixir, 12-4349
Eternal Father, Strong to Save,
19-6871
Eternal Ruler of the Ceaseless Round,
6-2150
Evening Hymn, 4-1382
An Evening Hymn, 13-4741

Poetry

- Faith, 13-4740
Gentle Jesus, Meek and Mild, 9-3270
God Moves in a Mysterious Way, 3-1141
The Hound of Heaven, 8-2901
I Think When I Read, 18-6651
Into the Woods My Master Went, 10-3740
Jesus Bids Us Shine, 12-4350
Jesus, Lover of My Soul, 16-5867
Jesus, Tender Shepherd, 13-4742
Lord, It Belongs Not to My Care, 16-5867
Lord of All Being, 4-1514
Miserere Domine, 13-4600
Now the Day Is Over, 11-4034
O God, Our Help in Ages Past, 5-1781
Peace, 12-4350
A Prayer, 7-2364
Prayers, 10-3739
Recessional, 19-6872
Rock of Ages, 7-2364
St. John the Baptist, 15-5647
The Spacious Firmament on High, 13-4600
Thy Way, Not Mine, O Lord, 13-4599
The Twenty-third Psalm, 2-486
A Vision, 10-3644

Immortality

- The Better Land, 18-6648
Crossing the Bar, 4-1382
The Deserted House, 10-3740
The Discoverer, 16-5866
In Flanders Fields, 16-5924
In Memoriam, 12-4343
Intimations of Immortality, 7-2633
The Singer, 12-4476
The Sleep, 8-2765
The Sun Was Falling Off to Sleep, 8-3007
When You Are Old, 16-5866

Poetry of Christmas

- The Birth of Christ, 17-6108
Christians, Awake! 17-6106
A Christmas Carol, 14-4955
A Christmas Hymn, 18-6466
Christmas Morning, 17-6107
The First Nowell, 18-6466
God Rest You Merry, Gentlemen, 17-6105
Good King Wenceslas, 3-843
A Visit from St. Nicholas, 4-1517
A Hymn on the Nativity of My Saviour, 17-6107
Little Children, Wake and Listen, 17-6108
Old Christmas, 9-3275
Old Christmas, 17-6106
Once in Royal David's City, 17-6108
Ring Out, Wild Bells, 17-6109
The Three Kings, 18-6465

Sonnets

- Composed upon Westminster Bridge, 12-4350
From You I Have Been Absent in the Spring, 2-724
God's Fool, 14-5128
How Do I Love Thee? 15-5647
Life, 12-4272
Little Sophy by the Seaside, 16-5923
London, 1802, 12-4349
Love, 12-4272
Nature, 14-5238
On First Looking into Chapman's Homer, 5-1645
On His Having Arrived at the Age of Twenty-three, 1-328
On His Blindness, 17-6378
On the Grasshopper and the Cricket, 18-6799
Quiet Work, 18-6650
Shakespeare, 7-2365
Shall I Compare Thee to a Summer's Day? 2-724
The Soldier, 12-4273
To the Lord General Cromwell, 12-4349
What the Sonnet Is, 12-4475
When I Have Fears, 3-1141
Why I Abandoned You, 9-3110
Work, 12-4272
The World Is Too Much with Us, 19-6989

Ballad Poetry

- Allan Water, 2-488
The Bailiff's Daughter, 11-4030
The Ballad of Agincourt, 5-1885
The Douglas Tragedy, 11-4112
The Happiest Land, 5-1780
The Revenge, 13-4739
Judas Iscariot, 14-5239
The King and the Abbot, 10-3735
Lochinvar, 12-4471
Maud Muller, 16-5707
The Old Cloak, 19-6992

Myths and Legends

- Ahab Mohammed, 18-6755
The Baron's Last Banquet, 13-4742
The Beggar Maid, 2-736
The Bell of Atri, 19-6869
The Erl King, 19-6988
Ginevra, 6-2032
Good King Wenceslas, 3-843
Israfel, 1-325
Kilmeny: A Fairy Legend, 16-5863
King Bruce and the Spider, 15-5521
King Cophetua and the Beggar Maid, 2-487
Lord Ullin's Daughter, 2-737
The Lorelei, 6-2035
A Musical Instrument, 5-1779
The Pied Piper of Hamelin, 1-224
The Queen and the Flowers, 6-2033
St. Agnes' Eve, 19-6874
The Sands of Dee, 1-322
The Sea-king's Burial, 14-4953
Sir Galahad, 3-1006
The Song of Hiawatha, 19-6985
Ulysses, 18-6798
The Walker of the Snow, 15-5420
King Lear and His Three Daughters, 5-1643

Story Poems

- Abou Ben Adhem and the Angel, 3-1138
The Boy and the Angel, 13-4741
The Child and the Snake, 7-2528
Coronation, 9-3275
The Culprit Fay, 4-1271
The Dog and the Water-lily, 7-2528
The Enchanted Shirt, 1-102
The Fern and the Moss, 12-4273
Fidelity, 11-4115
The Flight of Peter Bell, 12-4347
Flynn of Virginia, 6-2244
The Forsaken Merman, 8-3001
The Grandmother's Tale, 16-5921
The Gray Swan, 6-2149
How They Brought the Good News, 19-6867
The Inchcape Rock, 7-2527
The Irish Harper, 10-3741
The King's Picture, 18-6648
The Lame Brother, 14-4954
The Lay of the Last Minstrel, 17-6377
The Leak in the Dyke, 5-1777
The Lion and the Mouse, 3-1139
Lucy Gray, 3-1140
Maud Muller, 16-5707
The Miller of the Dee, 19-6870
The Parrot, 4-1384
The Stream and the Ocean, 10-3741
The Wreck of the Hesperus, 1-103

Humorous Poems

- The Blind Archer, 7-2526
The Butterfly and the Snail, 7-2638
Darius Green and His Flying-machine, 18-6795
The Discontented Apples, 5-1888
Dispute between Nose and Eyes, 11-4116
Elegy on the Death of a Mad Dog, 3-1141
The Heathen Chineese, 4-1381
The Horse, 15-5522
John Gilpin, 5-1639
A Million Little Diamonds, 10-3644
The Mountain and the Squirrel, 3-846
Only a Boy, 11-4030
The Priest and the Mulberry-tree, 16-5708
The Retired Cat, 5-1780
The Terrible Ball, 3-848
A Tragic Story, 3-1139
The Wind and the Moon, 16-5711

Little Verses for Little People

- A is an archway to fairyland gay, 16-5926-27
 A Child's Evening Prayer (with music), 2-611
 A cuckoo went back in his clock, 8-2907
 A duck and a drake, 13-4745
 A farmer's dog leap'd over the stile (with music), 5-1890
 A Little Boy That Cried, 16-5868
 A nick and a nock, 13-4602
 A pie sat on a pear tree, 8-3008
 A sunshiny shower won't last half an hour, 7-2530
 And, pray who are you? 8-2907
 Arthur O'Bower had broken his band, 7-2368
 As I walked by myself, 3-1010
 As I was going by Charing Cross, 10-3743
 As I was going o'er Westminster Bridge, 7-2368
 As I was going to sell my eggs, 13-4602
 As I went to Bonner, 17-6384
 As little Jennie Wren, 7-2639
 As soft as silk, as white as milk, 7-2368
 As the days lengthen, 7-2530
 Baby and I were baked in a pie, 3-1143
 Baby moon, 'tis time for bed, 12-4274
 Baby's got a new pelisse, 12-4274
 Baby's got no legs at all, 12-4274
 Bat, bat, come under my hat, 4-1386
 Betty Pringle had a little pig, 6-2154
 Billy, Billy, come and play, 8-2907
 Birch and green holly, boys, 4-1386
 Black we are, but much admired, 7-2368
 Bless you, bless you, bonnie bee, 3-1143
 Blow, wind, blow! and go, mill, go! 18-6800
 Bounce Buckram, velvet's dear, 17-6110
 Bow-wow, says the dog, 15-5652
 Brian O'Lin had no breeches to wear, 3-1143
 Bring back your sheep, 18-6756
 Bye, Baby Bunting, 2-739
 Charley, Charley, stole the barley, 13-4601
 Clap, clap handies, 13-4602
 Cock Robin got up early, 8-3008
 Cold and raw the north wind doth blow, 10-3743
 Come, let's to bed, says Sleepy-head, 2-740
 "Croak," said the toad, "I'm hungry, I think," 13-4601
 Dame, get up and bake your pies, 17-6112
 Dance a Baby (with music), 7-2530
 Dance to your daddie, 3-1010
 Diddley-diddley-dumpty, 14-4957
 Dribble, dribble, trickle, trickle, 3-1143
 Every lady in this land, 18-6800
 Fiddle-de-dee, fiddle-de-dee, the fly has married the bumble-bee, 4-1274
 Five little pussy-cats, invited out to tea, 16-6028
 Flour of England, fruit of Spain, 7-2368
 For every evil under the sun, 4-1386
 Good-morrow, to you, Valentine! 5-1890
 Great A, little A, 16-5868
 He comes in the night, 17-6111
 He loves me, he don't! 13-4745
 He that would thrive, 16-6028
 Hector Protector was dressed all in green, 17-6384
 Here am I, little Jumping Joan, 2-740
 Here we go round a ginger ring, 6-2154
 Here we go up, up, up, 18-6800
 Here's a poor widow from Babylon, 6-2040
 Hey diddle, dinkety, poppety, pet, 7-2639
 Hey, my kitten, my kitten, 18-6800
 Hick-a-more, Hack-a-more, 7-2368
 Higgledy Piggledy, here we lie, 3-1010
 Higgledy, Piggledy, my black hen, 4-1274
 High diddle ding, 17-6384
 Hop, hop, hop! 7-2367
 Hush, baby, my dolly, I pray you don't cry, 7-2639
 Hush-a-bye, babby, lie still with thy daddy, 13-4745

- Hush-a-bye, baby, Daddy is near,
13-4601
- I had a little nut-tree, 9-3342
- I have seen you, little mouse, 5-1890
- I love the little flowers, 14-4957
- I love little pussy, 2-611
- I love sixpence, pretty little sixpence,
4-1274; (with music), 10-3743
- I love you well, my little brother,
13-4745
- I must not throw upon the floor,
6-2247
- I never saw a Purple Cow, 7-2642
- I saw a ship a-sailing, 18-6800
- I Saw Three Ships, 17-6110
- If all the world were apple pie,
18-6800
- If bees stay at home, rain will soon
come, 14-5242
- If I had as much money as I could
spend, 2-741
- If ifs and ans, 7-2530
- If no one ever marries me, 12-4275
- If the old woman who lived in a
shoe, 7-2644
- If you sneeze on Monday, you sneeze
for danger, 10-3743
- I'll sing you a song, 7-2530
- I'm going out a-hunting, 14-4957
- In a cottage in Fife lived a man and
his wife, 8-3008
- In London once I lost my way,
6-2248
- In marble walls as white as milk,
7-2368
- Jack Jingle went 'prentice, 16-5868
- Jack Sprat had a pig, 13-4602
- Jacky, come give me thy fiddle,
10-3743
- January brings the snow, 10-3646
- Jim and George were two great
Lords, 9-3342
- Johnny head-in-air, 12-4480
- King Baby on His Throne, 12-4275
- Ladybird, fly (with music), 7-2367
- Lavender blue and rosemary green,
13-4602
- Lend me thy mare to go a mile,
13-4745
- Little Bobby Snooks was fond of his
books, 13-4602
- Little maid, pretty maid, whither
goest thou? 3-1143
- Little Polly Flinders, 2-491
- Little Tommy Tittlemouse, 10-3743
- Little White Feathers, 3-1144
- M.N.O. (with music), 16-5712
- March Meadows, 12-4274
- Mary had a little lamb, 6-2247
- Mary had a pretty bird, 7-2639
- Merry are the bells, 17-6113
- Millions of massive raindrops,
18-6800
- Miss Kitty was rude at the table one
day, 2-492
- Mr. East gave a feast, 6-2154
- Molly, my sister, and I fell out,
13-4601
- Monday's child is fair of face, 6-2247
- "Mother, may I go to swim?" 6-2154
- My father, he died, 9-3345
- My father he left me three acres of
land, 8-3008
- My house is red—a little house,
7-2642
- My little old man and I fell out,
7-2530
- My Maid Mary, she minds her dairy,
17-6110
- Now all of you give heed unto,
18-6800
- Now what do you think? 13-4745
- Nursery Rhymes of the Children of
France, 6-2248; 14-5132; 16-5869
- O, all you little Blackie-tops, 3-1148
- O dear, what can the matter be?
(with music), 14-5242
- O fir-tree fine, O fir-tree fine, 7-2367
- Oh, my pretty cock! 14-4957
- Oh, ring the bells! 8-2907
- Oh, where are all the good little
girls? 3-1144
- Oh where, and oh where is my little
wee dog? 6-2154
- Oh, who is so merry, so merry, heigh
ho! 15-5652
- Old Abram Brown is dead and gone,
7-2530
- Old Mother Goose when she wanted
to wander, 16-5930-31
- Old Mother Twitchett had but one
eye, 7-2368
- On Christmas Eve I turned the spit,
16-5868
- On Saturday night shall be all my
care, 7-2639
- One and One, 3-1144
- One, I love, two I love, 7-2644
- One, two, buckle my shoe, 17-6381
- Oranges and Lemons, 16-5932

- Peg, Peg, with a wooden leg, 7-2639
 Pemy was a pretty girl, 9-3112
 Peter, Peter, pumpkin eater, 13-4601
 Playgrounds, 12-4274
 Polly, put the kettle on, 7-2643
 Poor Billy boy was music mad, 3-1144
 Poor Dicky's dead! 14-4957
 Pretty flowers, tell me why, 18-6472
 Pretty maid, pretty maid, where have you been? 4-1274
 Punch and Judy fought for a pie, 13-4601
 Pussy sits beside the fire, 13-4745
 Pussy-cat Mew jumped over a coal, 13-4602
 Pussy-cat Mole jumped over a coal, 16-5713
 Queen Anne, Queen Anne, she sits in the sun, 8-3008
 Remember, remember, the fifth of November, 6-2154
 Robert Barnes, fellow fine, 8-3008
 Robin-a-Robin bent his bow, 13-4602
 Robin friend has gone to bed, 12-4274
 Rowley Powley, pudding and pie, 2-492
 Sea-gull, sea-gull, sit on the sand, 3-1010
 "Shall I sing?" says the lark, 8-2907
 Shock-headed Peter, 12-4477
 Simon Brodie had a cow, 7-2639
 Sing, sing, what shall I sing? 2-739
 Sleepy, baby, sleep, 3-1143
 Some little mice sat in a barn to spin, 5-1890
 Straight is the path of duty, 4-1386
 Taffy was a Welshman, Taffy was a thief, 3-1010
 The Bees (with music), 4-1519
 The Bogie Man (with music), 15-5527
 The cock doth crow, 7-2530
 The cuckoo's a bonny bird, 3-1143
 The dove says, "Coo, coo, what shall I do?" 15-5652
 The fair maid, who, the First of May, 4-1274
 The Farmer's Boy, 16-6025-27
 The Fir Tree, 7-2367
 The girl in the lane, that couldn't speak plain, 5-1890
 The Good Little Girls, 3-1144
 The gossips of the village, 13-4745
 The hart he loves the high wood, 6-2154
 The Hobby Horse, 7-2367
 The Hunter and the Hare, 12-4478
 The king of clubs, he often drubs, 7-2639
 The Little Boat, 18-6756
 The Little Sister, 12-4274
 The man in the wilderness asked me, 7-2639
 The Nonsense of Edward Lear, 2-490-91; 3-1012
 The Owl and the Pussy Cat went to sea, 6-2247
 The robin and the red breast, 8-2907
 The robin and the wren, 7-2639
 The Rock-a-bye Lady from Hush-a-bye Street, 18-6469
 The Story of a Blackamoor, 12-4479
 The Story of Fidgety Philip, 12-4477
 The Story of Flying Robert, 12-4480
 The sun one fine evening on high, 8-2907
 The Three Old Ladies, 3-1144
 The Walrus and the Carpenter, 6-2037-38
 The white dove sat on the castle wall, 13-4745
 There's a dear little home in Goodchildren Street, 9-3340
 There's a neat little clock, 16-5712
 There was a butcher who cut his thumb, 3-1011
 There was a cobbler clouting shoon, 3-1011
 There was a crow sat on a stone, 3-1011
 There was a horse going to a mill, 3-1011
 There was a jockey ran a race, 3-1011
 There was a king met a king, 7-2368
 There was a little boy went into a field, 5-1890
 There was a little girl, who had a little curl, 2-492
 There was a little Rabbit sprig, 4-1386
 There was a man and he had nought, 6-2039
 There was a man, and he went mad, 4-1385
 There was a monkey climb'd up a tree, 3-1011

- There was a navy went into Spain, 3-1011
 There was an old lady all dressed in silk, 3-1144
 There was an old man in a tree, 2-492
 There was an old woman, and what do you think? 16-5713
 There was an old woman called Nothing-at-all, 15-5652
 There was an old woman who ate an apple, 3-1011
 There was an owl lived in an oak, 15-5652
 There were three sisters in a hall, 13-4601
 They that wash on Friday, wash in need, 16-5712
 Thirty days hath September, 2-739
 Thirty white horses upon a red hill, 7-2368
 To market, to market, to buy a fat pig, 2-740
 Two frogs fell into a milk pail deep, 8-2907
 Two little girls are better than one, 3-1144
 Two little kittens, one stormy night, 13-4746
 Two sticks and an apple, 2-741
 Under a toadstool crept a wee elf, 12-4351
 Upon yon nearest rock-top, 6-2247
 Up hill and down dale, 3-1143
 Verses of Kate Greenaway, 19-6994-95
 Wash me and comb me, 3-1143
 Wassail, Wassail all over the Town, 13-4747
 We are all in the dumps, 17-6384
 Wee Willie Winkie, 17-6384
 What Every Wise Child Should Know, 8-2768
 What Everyone Knows, 2-738
 What is the news of the day? 17-6384
 What is the rhyme for porringer? 17-6110
 When I'm grown up, 14-5236
 When little Fred was called to bed, 7-2530
 When little Sammy Soapsuds went to take a ride, 2-741
 When Mummy's away, 14-5236
 When the snow is on the ground, 13-4745
 Where have you been all day? 18-6801
 Who killed Cock Robin? 10-3742
 Who stuffed that white owl? 7-2640
 Willy boy, Willy boy, where are you going? 13-4745
 You are going out to tea to-day, 16-5868
 You see, merry Phillis, that dear little maid, 14-4957
 You shall have an apple, 7-2530
 Young lambs to sell! 2-739

Mother Goose Rhymes

- A diller, a dollar, a ten o'clock scholar, 9-3342
 A frog he would a-wooing go, 18-6470-71
 A little old man and I fell out, 16-5712
 A swarm of bees in May, 4-1386
 As I was going up Pippin Hill, 16-5712
 As I was going to St. Ives, 16-5929
 As I went through a garden gap, 7-2368
 Baa, baa, black sheep (with music), 5-1782
 Barber, barber, shave a pig, 8-2907
 Bobby Shaft is gone to sea, 15-5652
 Bow, wow, wow, whose dog art thou? 13-4601
 Cock a doodle doo, 8-2772
 Cross patch, draw the latch, 4-1386
 Curly locks! curly locks! wilt thou be mine? (with music), 4-1386
 Dainty, diddlety, my mammy's maid, 15-5652
 Dance, little baby, dance up high, 14-4957
 Dickery, dickery dare, 13-4601
 Diddle, diddle, dumpling, 16-5868
 Ding dong bell, pussy's in the well, 11-4120
 Dr. Foster went to Glo'ster, 10-3743
 Elizabeth, Elspeth, Betsy and Bess, 9-3342
 Four and twenty tailors went to kill a snail, 2-740
 Girls and boys, come out to play (with music), 3-1010; (in color), 7-2641

Goosey, goosey gander, 9-3343
 Great A, little a, bouncing B, 7-2639
 Hey, diddle diddle, the cat and the
 fiddle (in color), 9-3341
 Hi! diddle diddle, 2-739
 Hickory, dickory, dock, 3-1147
 How many miles to Babylon? 3-1143
 Hush-a-by, baby, on the tree-top,
 8-2770
 I had a little moppet, 7-2639
 I had a little pony, his name was
 Dapple Gray, 16-5713
 I have a little sister, they call her
 Peep, Peep, 7-2368
 I'll tell you a story about Jack a
 Nory, 16-5713
 Is John Smith within? 18-6800
 Jack and Jill, 18-6652
 Jack Sprat could eat no fat, 4-1385
 Little Betty Winkle, 5-1890
 Little Jack Horner sat in a corner,
 2-740
 Little Miss Muffet, 4-1274
 Little Nanny Etticoat, 2-739
 Little Tom Tucker, 2-739
 Long legs, crooked thighs, 7-2368
 Mary, Mary, quite contrary, 16-5713
 Matthew, Mark, Luke and John,
 2-740
 My dear, do you know, 7-2642
 My Lady Wind, My Lady Wind,
 11-4035
 Oh, my kitten, a kitten, 15-5652
 Old King Cole, 11-4118-19
 Old Mother Hubbard, 16-5925
 Old woman, old woman, shall we go
 a-shearing? 3-1143
 One, two, three, four, five, 14-4957
 One misty, moisty morning, 17-6384
 Pat-a-cake, pat-a-cake, baker's man,
 3-1010
 Pease-pudding hot, 4-1274
 Peter Piper picked a peck of pickled
 pepper, 2-739
 Poor old Robinson Crusoe! 6-2154
 Pussy-cat, pussy-cat, where have you
 been? 11-4117
 Ride a Cock Horse, 19-6996
 Robin, the Bobbin, the big greedy
 Ben, 10-3743
 Robin and Richard were two pretty
 men, 2-740
 Rub-a-dub-dub, three men in a tub,
 14-4957

See a pin and pick it up, 7-2642
 See-Saw, Margery Daw (with
 music), 2-739
 Simple Simon met a pieman, 18-6653
 Sing a song of sixpence, 16-5928;
 (with music), 2-610
 Solomon Grundy, 10-3645
 Tell tale tit, 4-1386
 The fox and his wife, 17-6382-83
 The House That Jack Built, 15-5651
 The King of France and four thou-
 sand men, 9-3342
 The King of France went up the hill,
 7-2530
 The Lion and the unicorn, 8-2769
 The Little Cock-Sparrow, 10-3485
 The Little Man in Leather, 17-6384
 The man in the moon came tumbling
 down, 7-2530
 The Old Woman and Her Pig,
 15-5525-26
 The Queen of Hearts, 9-3344
 There was a frog lived in a well,
 18-6652
 There was a jolly miller, 17-6384
 There was a little boy and a little
 girl, 7-2530
 There was a man of Thessaly, 8-3008
 There was an old woman as I've
 heard tell, 3-1146
 There was an old woman lived
 under a hill, 2-740
 There was an old woman who had
 three sons, 18-6800
 There was an old woman who lived
 in a shoe, 3-1145
 There were once two cats of Kil-
 kenny, 13-4602
 There were two blackbirds, sitting
 on a hill, 2-740
 This little pig went to market, 2-740
 Three wise men of Gotham, 16-5713
 Tom, Tom, the Piper's son, 13-3645
 Trip upon trendies, 3-849
 Two little dogs sat by the fire, 7-2639
 What are little boys made of?
 16-5713; (with music), 6-2248
 When good King Arthur ruled this
 land, 8-2771
 When I was a bachelor, I lived by
 myself, 5-1889
 "Where are you going to, my pretty
 maid?" (with music), 2-741
 Who comes here? 2-739

Famous Books

Ramona, 1-133

In 1883 Mrs. Helen Hunt Jackson was appointed a special commissioner to investigate the conditions and needs of the Mission Indians in California. The following year she wrote *Ramona*. Probably this is the best story yet written of California in the days immediately following the taking of the coast state from Mexico. Mrs. Jackson wrote her book to show how unjust had been the treatment of the conquered peoples, but its greatest interest lies in its pen pictures of the great ranch and the Indian settlements.

The Last of the Mohicans, 1-267

There is no more picturesque figure in modern romance than the American Indian. Fenimore Cooper, whose life story is told under American Literature, became famous for his stories of adventure among the Redskins. This is one of his best-known tales, told over again as a short story. Cooper wrote this romance of the American wilderness in 1826, at a time when the Indians were still fairly numerous and often took the warpath against the white settlers. They had their encampments even in the Great North Woods of New York.

Supplementary Reading

Life of Fenimore Cooper, 13-4626

Robinson Crusoe, 2-665

In the early part of the eighteenth century an Englishman wrote a story of marvelous adventure which for a long time was regarded as a true narrative. The writer was Daniel Defoe, and his story *Robinson Crusoe*. It is a great work of the imagination, although the real adventures of a shipwrecked sailor named Alexander Selkirk may have suggested the idea of *Robinson Crusoe* to Defoe.

Supplementary Reading

Life of Daniel Defoe, 4-1480

Gulliver's Travels, 3-947

A few years after *Robinson Crusoe* was published, one of the greatest satirical stories in our language appeared. This was *Travels into Several Remote Nations of the World*, the author of which called himself "Lemuel Gulliver." The first part appeared in 1726. It was written just like a book of travel, but its purpose was to satirize the England of that time. The story is extraordinary, and people liked it because it was so unusual. The author was the Reverend Jonathan Swift, Dean of St. Patrick's, Dublin.

Supplementary Reading

Life of Swift, 6-1619

The Adventures of Baron Munchausen, 4-1421

This book appeared in England in 1785. It is a satire on the extravagant tales of travelers. Rudolph Raspe, a German scholar who was clever but not very honest, had taken refuge in England to escape punishment for some wrongdoing in Germany. To make money he wrote a little book which became popular at once because the travels of his hero, Baron Munchausen, were so ridiculous. As years went on, other unknown authors added to the book, till it became a considerable volume, which has been translated into many languages.

The Adventures of Don Quixote, 5-1629

In the early years of the seventeenth century stories of the impossible deeds performed by wandering knights were almost the only books read in Spain, where lived the great author Cervantes. He decided to ridicule these absurd stories and so he wrote *The Adventures of Don Quixote*. The hero of the book is a kindly old gentleman whose head had been turned by reading trashy stories of knights and ladies fair. For its humor, its wisdom, its understanding of humanity, as well as for its pictures of Spanish life, this book is one of the greatest in literature. It is not for a century, but for all time.

Supplementary Reading

Life of Cervantes, 19-7127

The Gold-Bug, 5-1899

The Gold-Bug is a delightful treasure story wherein the secret lies hidden in a cipher. Its author, Edgar Allan Poe, was born in Boston in 1809 and died in Baltimore in 1849. His life was tragic, yet in spite of the shadows—or because of them—he produced some poems that will live forever. He became a master of the short mystery story. Some of his tales are gruesome and full of horror, but they are perfectly told.

Supplementary Reading

Life of Poe, 13-4725

The Story of the Iliad, the Odyssey and the Æneid, 6-1983

The oldest real books are the Iliad and the Odyssey, supposed to have been composed by the Greek poet Homer between 800 and 1,000 years before the Christian Era. Perhaps he brought together the work of other poets as well as his own. The greatest Roman poet, Virgil, was born just seventy years before Christ, and his most famous work is the Æneid.

Supplementary Reading

Life of Homer, 16-5748

Life of Virgil, 16-5911

The Man without a Country, 7-2401

The life of Philip Nolan is told so simply and so well that many have believed that this is a true story. While no such punishment was ever given to a United States officer, the Reverend Edward Everett Hale, the author, has very realistically described the feelings of a man cut off from home and country by his own act. The story was written in the dark days of 1863, when there were many disloyal people in the North, and it was written as a warning.

David Copperfield, 8-2773

The story of David Copperfield was Charles Dickens' own favorite—it is, besides, largely the story of his own life. The illustrations given are from copies of the original pictures drawn for the story more than fifty years ago.

Supplementary Reading

Life of Dickens, 8-2731

Wacousta, 9-3141

The lives of the early settlers in North America were in constant danger from Indians. This story by Major John Richardson gives us some idea of the bravery of the pioneers who won the land from its savage owners. Major Richardson, who was born in 1796, had heard from older people tales of actual experiences in Indian warfare. He had, moreover, been brought up in the fort at Amherstburg, where Indians were always a part of the scene.

Two Years before the Mast, 9-3357

This book is one of the best descriptions of life on a sailing ship in the first half of the last century. The author, Richard Henry Dana, was a member of a distinguished Boston family who made the voyage around the Horn for his health during his student days at Harvard. After Mr. Dana's voyage he returned to his studies, graduated from Harvard, and became a famous lawyer.

The Clockmaker, Sam Slick, 10-3527

The Clockmaker, or The Sayings and Doings of Sam Slick of Slickville, first appeared in the form of articles in a paper, The Nova Scotian, beginning in 1835. The author was Thomas Chandler Haliburton, who was born in 1796 at Windsor, Nova Scotia. Although the chief character of the book, Sam Slick, is a Yankee, the scene is laid in Nova Scotia, and Nova Scotians and Yankees alike are made the butt of Haliburton's shrewd satire.

Ben-Hur, 10-3745

Ben-Hur is a work of fiction dealing with the time of Jesus: it is the romance of a young Jew who became a convert through the teachings of Jesus. The author, General Lew Wallace, was already well known as a soldier and statesman as well as a story-writer when in 1880, at the age of fifty-three, he published Ben-Hur.

Les Misérables, 11-3861

Les Misérables is Victor Hugo's masterpiece. It is the story of a soul purified by heroism and glorified through suffering. Valjean, the ex-convict hero, is one of the finest characters in fiction. Hugo was born at Besançon in 1802 and died in 1885.

Supplementary Reading

Hugo's Position in French Literature, 18-6717

The Waverley Novels, 11-4069

This series contains thirty-two stories, would fill about ten thousand closely printed pages, and covers a period of history of more than seven hundred years. It is the work of Sir Walter Scott during the years 1814 to 1831. Besides a general view of this library, which in a complete edition usually runs to about twenty-five volumes, we give here an epitome of each and finally an outline of the story of Waverley and an excerpt from it.

Supplementary Reading

Scott and His Stories, 7-2625

Round the World in Eighty Days, 12-4235

Jules Verne, the famous French writer of imaginative tales, was born at Nantes, February 8, 1828, and died at Amiens, March 24, 1905. He wrote a number of stories of marvelous adventures. The hero of this book is an Englishman, and the author makes many comic errors in his depiction of English life. The speed of railway and steamship travel has greatly increased since the story was written in 1873, and we could now make the journey in half the time.

Scottish Chiefs, 12-4319

In the olden days there was constant warfare between Scotland and England, and in Scottish Chiefs, by Jane Porter (1810), we have a very vivid picture of the struggle. The romantic Sir William Wallace is the hero, and immediately the book was published it was accepted by all Scots as a tribute to the cherished memory of Wallace.

Treasure Island, 13-4645

Treasure Island is a boy's tale of adventure, written for boys, with a boy for a hero. It grew out of a map which Robert Louis Stevenson drew and colored one day to entertain his little stepson, Lloyd Osbourne. On the map he marked names at random and then built a story around them. The tale was first published in 1881 as The Sea Cook, and appeared in Young Folks, a boy's magazine. In 1883 it came out in book form.

Supplementary Reading

Stevenson as an Author, 8-2867

The Canterbury Tales, 13-4767

The most famous work of Geoffrey Chaucer, the first great English poet, is *The Canterbury Tales*. Its plan is simple. A company of pilgrims set out from the Tabard Inn at Southwark in April, 1387, to visit the shrine of St. Thomas à Becket at Canterbury. The landlord of the inn proposed that each pilgrim, to pass the time, tell a story on the way to Canterbury and on the way back. As there were thirty-three people in the company, including Chaucer himself, that would mean sixty-six tales, but the poet wrote only twenty-four.

Supplementary Reading

Life of Chaucer, 1-300

Westward Ho! 14-5027

Charles Kingsley wrote *Westward Ho!* mainly to commemorate those early days of England's naval and commercial glory when, under the wise patronage of Queen Elizabeth, England's enterprise was spreading and taking root in distant seas. Spain was the most powerful of European nations at that period, and her ambition was to be mistress of the world, especially of England. But England's seamen, notably the men of Devon, put an end to such designs when they routed the Great Armada in 1588.

Tom Brown's Schooldays, 14-5149

This celebrated story of English school life was written in 1856 by Thomas Hughes, an eminent lawyer and judge, a friend and helper of the poor. Judge Hughes was born October 23, 1823, and died March 22, 1896. He was educated first at Rugby, under the famous Dr. Arnold, and afterward at Oxford. This story is largely an account of his and his brother's experiences, and we are not far wrong in reading Thomas Hughes where it says Tom Brown.

Moby Dick, or The Whale, 15-5401

Herman Melville, the author of *Moby Dick*, was born in New York City in 1818. At eighteen years of age he went to sea as a cabin-boy on a vessel trading to Liverpool. Four years later he went for a whaling cruise in the Pacific. After enduring a year and a half of cruelty from his captain, Melville deserted at the Marquesas Islands. He was captured by cannibals, but was rescued by an Australian ship. So Melville knew well the life which he describes in *Moby Dick*.

The Pilgrim's Progress, 15-5543

No book except the Bible itself has had greater influence for good in the minds of men than *The Pilgrim's Progress*. Written in simple, straightforward English by a poor tinker, John Bunyan, who became a powerful preacher of God's word, this story is likely to be read as long as literature endures. It is in allegorical form,

illustrating the trials that beset a Christian on his way through life.

Supplementary Reading

Life of Bunyan, 4-1477

Roughing It in the Bush, 16-5901

Susanna Moodie, the author of this account of pioneer days in the Canadian bush, came out from Scotland with her husband in 1832. Both she and her husband were gifted writers, and her sister, Agnes Strickland, won fame as the author of the *Lives of the Queens of England*. Her description of the sufferings and privations endured by educated persons who came to settle in British North America brings realistically before us the difference that has taken place in the lot of immigrants since the early days of the nineteenth century.

The Old Man Named Scrooge, 17-6115

A Christmas Carol in Prose is only a short book written for the Christmas season, but it is one of the most charming stories Dickens ever gave us. It is the best Christmas story. "It seems to be a national benefit, and to every man and woman who reads it a personal kindness," said Thackeray, the novelist.

The Count of Monte Cristo, 18-6573

Monte Cristo was originally published in 1844. It is the greatest of the novels of Alexandre Dumas, the celebrated romancer. Purely an effort of the imagination, it has no historical foundation, but surely no more fascinating story was ever conceived. In its original form it is a work of enormous length.

Masterman Ready, 18-6757

Masterman Ready was written by Captain Marryat to entertain and instruct his own children, who had been so delighted with *The Swiss Family Robinson* that they wanted their father to continue it. Captain Marryat was born in London, July 10, 1792, and died in Norfolk, August 9, 1848. He was a naval officer who won fame as a writer of stories of the sea which are true to life.



Stories

Fairy Stories

Aladdin and the Wonderful Lamp, 12-4193

Ali Baba and the Forty Thieves, 2-537

Alice in Wonderland, 3-1089

The Babes in the Wood, 7-2341

- Beauty and the Beast, 18-6607
The Boy at the Giant's Castle, 19-7008
Catching a Thief, 17-6099
Childe Roland to the Dark Tower Came, 9-3245
Cinderella and the Glass Slipper, 19-7222
The Cobblers and the Cuckoo, 9-3347
The Cunning Farmer and the Dwarf, 13-4558
The Discontented Fir Tree, 15-5323
The Discontented Pendulum, 12-4198
East of the Sun and West of the Moon, 5-1845
The Emperor's New Clothes, 3-851
The Emperor's Nightingale, 7-2455
The Fairies and the Hunchbacks, 10-3442
The Fairies of St. David, 2-404
A Fairy Funeral, 11-3836
The Fairy Maid of Van Lake, 15-5441; in French, 6-2108
The First Apple Dumpling, 17-6095
The Fruit of Happiness, 11-3832
The Giant Who Had No Heart in His Body, 4-1525
The Giant with Three Golden Hairs, 5-1841
The Giant's Plaything, 5-1575
The Gnomes Who Found the World Is Round, 3-854
The Goblins in the Gold-mine, 4-1523
Goldilocks and the Golden Crown, 14-4941
Hansel and Grethel, 6-1965
Hop-o'-my-Thumb, 17-6317
In the Days When Men Were Good, 7-2600
Jack and the Bean-stalk, 10-3597
Jack the Giant-killer, 18-6793
The King of the Golden River, 6-2221
The Land of Youth, 7-2601
Little Claus and Big Claus, 2-755
The Little Spinner at the Window, 10-3711
Little Tiny Thumbeline, 18-6787
The Magic Boy Fiddler of Sicily, 11-3983
The Magic Tinder-box, 6-2105
Miss Dollie and Captain Blue, 14-5255
Noureddin and the Wonderful Persian, 13-4755
Nutcracker and the King of Mice, 10-3600
Olaf of Orchard Farm, 12-4301
The Old Couple at the Mill, 11-3829
A Pair of Magic Slippers, 2-402
The Prince Who Was Poor, 15-5529
The Prince's Five Servants, 13-4749
Princess Florina, 7-2458
The Princess Who Became a Goose Girl, 11-3830

The Princess's Golden Ball, 14-5193
Puss in Boots, 10-3441
Rapunzel's Golden Ladder, 9-3352
The Remarkable Rocket, 14-5260
Rip Van Winkle, 12-4481
Rum-Pel-Stilt-Skin, 11-3981
The Search for the Real Princess, 2-756
The Selfish Giant, 4-1187
The Shepherd-maid and the Sweep, 11-3903
The Silent Princess, 13-4557
Sindbad the Sailor, 19-7215
Snowdrop and the Dwarfs, 7-2597
A Son of a Gun, 19-6998
The Story of Fairyfoot, 11-4137
The Story of Faithful John, 11-3901
The Story of Little Red Riding-Hood, 18-6474
The Story of the Sleeping Beauty, 19-7006
A Tale of Christmas Eve, 17-6098
The Tale of Jenny Martin, 10-3713
The Three Bears, 16-5825
The Three Little Pigs, 1-145
Three Nights in the Enchanted Castle, 11-3984
Tom Thumb, 18-6611
The True Story of Father Christmas, 17-6102
Twelve Dancing Princesses, 4-1521
The Ugly Duckling, 17-6096
When Betty Lost Her Way, 10-3716
The Wind Sings down the Chimney, 5-1576
The Witch's Ring, 2-541
The Wizard's Castle in the Air, 10-3444
The Yellow Dwarf, 15-5443

Myths and Legends

British

Earl's Daughter and Beggarman, 14-5196
Gelert, the Faithful Dog, 5-1693
Geraint and Enid, 17-6320
Gog and Magog, 14-5194
How Gotham Got a Bad Name, 6-2108; in French, 12-4489
King Arthur and His Knights, 19-6941
Legends of Places in England, 17-6324
The Lily Maid of Astolat, 16-5823
Mona and the Forsaken Merman, 1-59
Robin Hood and His Merry Men, 2-397
St. George and the Dragon, 1-54
Sir Tristram of Lyonesse, 7-2460

Chinese

The Story of the Willow-Pattern Plate, 4-1532

French

The Adventures of Reynard the Fox, 8-2965

Love Laughs at Locksmiths, 7-2352

German

Howleglass, the Merry Jester, 8-2962

Legends and Tales of the Rhine, 18-6503

Lohengrin, or the Swan-Knight, 8-2957

Undine, the Story of a Water Nymph, 11-4141

Greek

Achilles and the Queen of the Amazons, 1-53

The Dog That Remembered Odysseus, 1-146

The Face No Man Could Look On, 15-5442

Icarus and His Waxen Wings, 12-4197

Pandora, 14-5259

Penelope's Marvelous Tapestry, 1-53

The Quest of the Golden Fleece, 3-1100

The Riddle of the Sphinx, 18-6610

Stories of Greece and Rome, 9-3083

The Story of Cupid and Psyche, 19-7005

The Story of Midas, 16-6030

Indian

Indian Legends, 17-6199

Japanese

The Mysterious Portrait, 9-3080

Jewish

The Legend of the Wandering Jew, 19-7224

Stories from the Talmud, 9-3082; 18-6480

Kafir

Stories Told to Kafir Children, 5-1582

Norse

Iduna and the Golden Apples, 15-5328

The Story of the Days, 12-4199

A Tale of Many Lands, 14-4942

Roman

Androcles and the Lion, 12-4488

The Geese Who Kept Guard of Rome, 11-3982

Miscellaneous

Legends of Places and Things, 15-5537

Why the Elm Tree Grows So Tall, 8-2820



Fables and Proverbs

Egyptian

The Farmer and His Dog, 8-2964

Greek

Æsop, 1-58; 2-539; 3-1102; 4-1186; 4-1342; 6-1969; 11-3986;
11-4144; 13-4752; 14-4946; 15-5538

Indian

The Hundred Thousand Monkeys, 16-6032

The Kafir and the Lion, 16-6033

Turkish

How the Thief Was Found Out, 18-6479

The Lawyer and the Oyster, 18-6484

Miscellaneous

The Dog and the Wolf, 17-6323

The Fox without a Tail, 12-4487

The Hungry Fox and the Kitten, 7-2352

The Husband Who Was to Mind the House, 3-1099

The Lord of the Lions, 2-404

The Peasant and the Three Robbers, 10-3719

The Proud King of Kamera, 7-2352

Proverb Stories, 16-6036

Folk Stories

Little Goody Two-shoes, 9-3077

Stories Told in India 3,000 Years Ago, 10-3718

Stories Told in the Middle Ages, 8-2961

The Wisest Maid in Wessex, 15-5441; in French, 11-4143

Nature Stories

Black Diamond, 15-5326

The Dog That Knew His Master, 11-4139

The Destruction of a Ship by a Whale, 4-1189

Jack Miner, the Man Who Loves Birds, 8-2813

Legends of the Stars, 6-1970

Stickeen, 12-4195

The Story of Day, 16-6034

Adventure

A Battle with Snakes, 4-1530

Eyes Front, 10-3715

The Tale of Bob Singleton, 12-4486

Stories about Men and Women

Dick Whittington and His Cat, 2-758

The Man of Great Importance, 5-1691

The Merciful Knight, 9-3244
Sir Walter Scott and Some of His Pets, 14-5265
Stories Told in the Old English Schools, 8-2963

Hero Stories

An Apronful of Powder, 3-1037
The Arab Patriot of Algeria, 4-1255
A Band of Noble Men, 4-1256
The Bear Hunt, 14-5122
The Beloved Physician (Dr. Trudeau), 1-229
The Boy on the Burning Deck (Casabianca), 19-6881
The Boy Who Saved the Boat, 1-128
The Boy Who Took a Man's Place, 4-1256
The Boy Who Would Not Fight against Freedom, 13-4581
The Brave Apprentice, 1-123
The Brave Constable of France (Du Guesclin), 10-3468
The Brave Cardinal of Milan (Borromeo), 10-3466
Brave Countess Joan of Brittany, 12-4226
The Brave Deed of a Young American Doctor (Samuel Howe), 13-4580
The Brave French Maid of Noyon, 11-3806
A Brave Girl, 14-5121
Brave Grizel Hume, 2-441
The Brave Little Dog of the Wood, 9-3079
Cher Ami, D. S. C., 7-2319
The Daughter of Sir Thomas More, 14-5124
The Devotion of a King's Daughter (Duchess of Ferrara), 19-6881
The Devotion of a Roman, 11-3806
The Doctor of Burton Port, 6-2008
Dogs Who Have Done Their Bit, 16-5735
Edith Cavell, 17-6396
The Elsie to the Rescue, 14-5120
The Friend of the Slaves (St. Vincent de Paul), 5-1732
The Friendship of Damon and Pythias, 9-3064
A Frugal Hero of Ancient Rome (Curius Dentatus), 3-889
The Girl Who Held the Fort (Madeleine de Verchères), 11-4089
The Girl Who Sold Her Hair, 4-1257
The Girl Who Walked to London (Helen Walker), 12-4224
A Girl's Desperate Ride (Grizel Cochrane), 10-3465
Greater Love Hath No Man Than This (Father Damien), 7-2320
Heroes of Aviation, 17-6291
A Heroine of the Southern Seas (Kapiolani), 2-446
The Heroism of Grace Darling, 3-1035
How Alcestis Gave Her Life, 8-2703
How Lady Godiva Helped Her People, 17-6295
How Regulus Went Back to Die, 1-125
How the Children Saved the Town, 9-3068

Stories

- John Maynard, Pilot, 17-6137
Joyce Kilmer, 17-6394
Kate Barlass of the Broken Arm, 13-4579
The Last Fight at the Colosseum, 9-3064
A Lithuanian Girl's Quick Wit, 11-3811
Little Agnes of the Snow, 19-6879
A Little Girl Trusted with State Secrets, 1-126
The Little Lombard Sentinel, 18-6482
The Man Who Carried Death (Peel), 17-6139
The Man Who Knew No Fear (Bayard), 13-4577
The Man Who Loved Children (Pestalozzi), 1-127
The Man Who Loved the House, 2-443
The Man Who Saved His Son, 3-1036
The Man Who Saved St. Helier (Touzel), 11-4092
The Man Who Thought of His Comrades, 17-6294
Marie Antoinette's Great Sacrifice, 6-2009
The Men of the Birkenhead, 3-888
The Mother of the Gracchi, 11-3811
Out of the Depths of the Earth, 9-3066
A Poacher's Silence, 17-6138
A Prince Who Gave Up His Freedom (Fernando), 4-1257
The Queen Who Gave Up Her Boy (Jeanne of Navarre), 13-4581
A Race for the Lifeboat, 5-1731
The Race from Marathon, 3-887
The Race with the Wolves, 9-3067
Rupert Brooke, 17-6393
The Sacrifice of a King's Sister (Antigone), 6-2008
The Sacrifice of Iphigenia, 11-3808
The Servant Who Tried to Save His Mistress, 3-1036
The Soul of Countess Cathleen, 15-5379
The Story of Brave William Tell, 19-7217
The Swiss Guards Who Did Their Duty, 3-888
The Tale of a Slave (Geronimo), 19-6880
The Tallow Dip and the Black Salt, 8-2708
Three Cups of Cold Water (Sir Philip Sidney), 6-2007
The Undying Love of a Sister, 9-3068
The Wonderful Story of the Venerable Bede, 1-126
A Village of Heroes, 9-3063
When the White Ship Went Down (Prince William), 12-4223
A Woman against a King (Lady Nithsdale), 12-4225
The Woman Who Clothed the Poor (Dorcas), 1-124

Historical Stories

- Antonio's Wonderful Lion, 5-1689
The Boy Whom France Forgot, 1-150
A Clever Bad Man, 18-6476

The Great Fire of London, 8-2819
How the French Reached Moscow, 7-2599
The King, the Nobleman and the Peasant, 3-857; in French, 11-4144
The Last Class, 19-7220
The Last Will of Charles Lounsbury, 5-1687
The Little Princes in the Tower, 1-147
The Lonely Shepherd Boy, 16-6031
The March of the Ten Thousand, 14-5257
Marjorie Fleming, 10-3717
Mother Shipton, 7-2602
Peasant Girl and Empress, 5-1691
The Song That Found a King, 16-5827
The Story of Beowulf, 1-56
When Did You Last See Your Father? 13-4563
The Wonderful Friends, 19-7001

Poems and Plays

All's Well That Ends Well, 8-2686
The Blue Bird, 14-5069
Hamlet, Prince of Denmark, 16-5761
The Love That Was Worth Nothing, 5-1578
Measure for Measure, 16-5755
The Merchant of Venice, 8-2688
A Midsummer Night's Dream, 8-2685
Much Ado about Nothing, 16-5757
Othello, the Moor of Venice, 8-2691
Romeo and Juliet, 16-5759
The Story of Peter Pan, 13-4659
The Tempest, 8-2687
Twelfth Night, 8-2692
The Winter's Tale, 16-5756

Miscellaneous

A Box of Good Luck, 9-3351
The Branding of Tommy, 9-3239
The Cat and the Parrot, 11-3837
The Emperor and His Servant, 16-5826
Fools and Jesters and Kings, 19-7216
The Four Wise Ministers, 18-6473
The Game of Billiards, 4-1528
How the Bad News Reached the King, 13-4751
The King Who Could Not Sleep, 5-1577
The King's Guest, 16-6029
The King's Three Questions, 16-5830
A Letter from a Man We All Know, 16-5689
A Little Game of Thinking, 8-2960

Stories

A Little Letter, 16-6035

The Luck of Simple Jack, 13-4756; in French, 14-4948

The Miller and His Pets, 19-6997

The Rosy Apple, 5-1580

The Sad Heart of a Little Trott, 14-4945

A Scene from Nicholas Nickleby, 16-5683

The School Examination, 13-4753

Stories from the Chinese, 5-1579

The Three Maid-servants, 7-2602



FINE ARTS



Painting

The Rich Treasure That Is Ours, 1-61

Art, the earliest as well as the highest and the most elusive form of self-expression, is the heritage of us all.

The Cave-men and Their Pictures, 1-189

The oldest known art of the human race, drawings on bones and horns and the walls of caves in Europe; the art of the reindeer-hunters of the Stone Age.

Supplementary Reading

The Pliocene and the Pleistocene, 6-1925

The Artists of the Old Empires, 1-289

Following the Bronze Age—the wall-decorations of Egypt, Assyria, Babylonia and Persia.

Supplementary Reading

Babylonia and Assyria, 2-647

Egypt's Fascinating Story, 3-807

Persia and Its Story, 3-909

The Literatures of the East, 15-5459

Ægean and Classical Painting, 2-447

Ancient treasures brought to light in Crete and Mycenæ and Tiryns, disclosing a great civilization. Greek painting on vases and walls.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Literature of Greece, 16-5747

The Great Greeks, 2-701

The Grandeur That Was Rome, 4-1191

The Literature of Rome, 16-5907

A Great Light Shines, 2-575

Early Christian art, influenced by Syria, Persia and Greece. Roman and Byzantine branches. Decorations in the catacombs, in churches and in books.

Supplementary Reading

The Lovely Books of Long Ago, 2-477

The Wonder Men of Florence, 2-691

The Italian primitives, their place and value.

Sienese artists: Duccio, Memmi, the Lorenzetti, Bartolo.

Florentine artists: Cimabue, Giotto, Orcagna, Taddeo Gaddi, other followers of Giotto, Fra Angelico, Benozzo Gozzoli, Massaccio, Botticelli, Piero di Cosimo, Ghirlandaio, Lorenzo di Credi, Piero dei Franceschi the Umbrian, and Luca Signorelli the Tuscan.

Supplementary Reading

The Builders of Florence, 5-1735

The Literature of Italy, 17-6149

The Little Poor Man of Assisi, 6-1991

The Rise and Fall of Turkey, 13-4797

Leonardo and Michelangelo, 3-823

Renaissance in Tuscany; growth of learning; return of Greek culture to Italy after the conquest of Byzantium by the Turks—three influences on fifteenth- and sixteenth-century art.

Leonardo da Vinci, an artistic genius. Some of his paintings: The Last Supper, Mona Lisa, The Madonna of the Rocks; portraits, and others.

Michelangelo—the master—sculptor, painter, architect, poet. Some of his paintings: The ceiling of the Sistine Chapel, The Last Judgment for the wall of the Chapel, The Holy Family, and others.

Supplementary Reading

The Builders of Florence, 5-1735

Raphael and His Time, 3-957

Fra Bartolommeo, master of composition.

Andrea del Sarto, the "faultless painter."

Bronzino, first Florentine to paint independent portraits of children.

Umbrian artists: Gentile da Fabriano, Perugino and Pinturicchio.

Raphael Sanzio, the "divine painter," supreme in the composition of space. The three periods of his work—Umbrian, Florentine and Roman. Some of his paintings: The Marriage of the Virgin, the Madonna groups and the decorations of the Stanze and the Loggie in the Vatican.

Supplementary Reading

The Builders of Florence, 5-1735

Venice Rises and Italy Wanes, 3-1103

Squarcione, founder of the Paduan school.

Mantegna and the classic ideal.

The **Bellinis**—Jacopo, Giovanni and Gentile—the first great masters in Venice.

The **Vivarini** family, **Lorenzo Lotto**, **Antonello da Messina**, **Crivelli**, **Carpaccio**, **Cima da Conegliano**, **Palma Vecchio**, **Sebastiano del Piombo**.

Giorgione, one of the first to give landscape equal importance with figures.

Titian, the great painter of a world of beautiful things.

Tintoretto, industrious painter of imposing large pictures.

Paolo Veronese, whose banqueting scenes and other works have strongly decorative feeling.

Later Venetians: **Tiepolo**, **Guardi** and **Canaletto**.

Borgognone and **Bernardino Luini** of Milan.

Moretto and **Moroni** of Brescia.

Correggio of Parma, able in handling light and shade and in painting figures in motion.

Painters of Bologna: The **Caracci** family and their followers, **Albano**, **Domenichino**, **Guido Reni**, **Guercino**.

Caravaggio, a leader in realism.

Salvator Rosa of Naples.

Supplementary Reading

The Makers of Venice, 4-1455

The Artists of Flanders, 4-1221

The illumination of manuscripts.

Flemish genius, content with things as they are.

The **Van Eycks**, **Hubert** and **Jan**, of Bruges; **Jan**, the greatest portrait-painter of Europe. Their altar-piece for a church in Ghent, The Adoration of the Lamb.

Roger van der Weyden, a man of visionary and mystic thoughts.

Thierry Bouts of Haarlem, who painted the harder side of life.

Memling's religious pictures and fine portraits.

Hugo van der Goes' paintings of sweetly grave Flemish women.

Quentin Matsys, **Gerard David** and **Mabuse** (**Jan Gossaert**).

Hieronymus Bosch's amusing groups.

The **Brueghels**—painters of genre pictures: two **Pieters** and two **Jans**. The beauty of Flemish landscape first realized in their work.

Early French art allied to that of Flanders.

Franco-Flemish School at Paris.

The Avignon School.

Nicholas Froment.

Jean Fouquet, father of French art.

The **Clouets**, who combined Flemish and French qualities.

Supplementary Reading

Belgium and Her People, 15-5495

The Beginnings of France, 10-3429

The Literature of France, 18-6559

The German Painters, 4-1343

Early schools of painting at Prague, Cologne, etc.

Old "Masters" whose names are lost, although their works remain.

"Master Stephan" and his triple panel, The Adoration of the Magi, in Cologne Cathedral.

Sturdy realistic studies of men and women.

Martin Schongauer, of the Swabian school, and his pupil Burgkmair.

Lucas Cranach, founder of the Saxon school.

Mathias Grünewald of Alsace, who used color as a painter should.

Albrecht Dürer, of unrivaled greatness. Contact with Venetian and Flemish art. His art lifted to great heights by thought and imagination. Some of his paintings: famous portraits, The Adoration of the Magi, The Four Evangelists and others. The greatest expression of his genius, in engraving and woodcutting—a supreme master of line.

Hans Holbein the younger. Pupil of his father, Hans the elder.

Painter to the English court. Some of his paintings: the Meyer Madonna; portraits of Sir Thomas More, the Duchess of Milan, George Gisze, and others. Famous as engraver as well.

Supplementary Reading

The Beginnings of Germany, 11-3959

The Literature of Germany, 17-6265; 17-6409

The Spaniards and Their Pictures, 4-1495

Real activity in art in Spain delayed till the sixteenth century.

Morales, a painter of sad-faced madonnas and saints.

El Greco, a Cretan. Distorted religious subjects treated with exaggeration of realism. His fame a growing one because of what he was trying to express—a forward-reaching art.

Ribera, influenced by the realism of Caravaggio of Naples.

Zurbaran's studies of monks and saints.

Velasquez, the great genius of Spain, the world's mightiest genius of technique. New artist vision, the "perspective of light." Some of his paintings: many fine portraits, Christ on the Cross, The Tapestry Weavers, The Maids of Honor, and others.

Murillo, lovable painter of happy children and gentle madonnas.

Goya, whose able canvases reflect the gay life of Spain.

Supplementary Reading

The Story of Spain, 14-5039

The Literature of Spain and Portugal, 19-7125

The Dutch and the Flemings, 5-1585

The Flemings: Trade centre shifted from Bruges to Antwerp.

Rubens, a fine and easy technician whose paintings glow with exuberant life. Some of his works: Coronation of Marie de Medici, The Descent from the Cross; portraits, landscapes, and others.

Jordaens.

Van Dyck, the "Cavalier Painter" in Italy, and court painter to Charles I of England. Many distinguished portraits.

David Teniers, the younger, who made "homely" pictures of Flemish life.

The Dutch: The art of Holland distinctly national and intimate, a "stay-at-home genius."

Frans Hals, the "laughing artist," a great portraitist. Large corporation groups and many portraits.

Salomon and Jacob Ruisdael, landscapists, rare painters of countryside, sky and shore. Some of Jacob's works: The Swamp in the Wood, The Mill near Wykby Duurstede, and others.

Hobbema, last great Dutch artist. Some of his landscapes: The Avenue of Middelharnais, The Water Mill, and others.

Van Goyen, painter of Dutch landscape in winter and summer.

Animal painters

Paul Potter—The Young Bull, and others.

Albert Cuyp—many landscapes with cattle as well as other subjects.

Genre painters

Gerard Terborch—high attainment in technique and color.

Jan Vermeer—modern in treatment of light and atmosphere.

Pieter de Hooch—Dutch homes depicted.

Jan Steen—varied subjects and styles in his story-telling pictures

Gerard Douw and Mieris.

Supplementary Reading

Belgium and Her People, 15-5495

The Story of the Netherlands, 15-5555

Rembrandt, 5-1709

Rembrandt Van Rijn—a Dutch master, a world genius and a tireless worker. Supremacy in etching: The Hundred Guilder Piece and other works. Superb technique in light and shade. Portraits revealing characteristics of individuals, and interesting as pictures. Some of his paintings: Sortie of the Banning Cock Company, The Lesson in Anatomy, The Syndics of the Clothworkers' Guild, and others.

Supplementary Reading

The Story of the Netherlands, 15-5555

The Rise of French Art, 5-1873

Early influences from Italy and Flanders.

Beautifying of churches and homes, first by imported artists.

A period of imitative work by French artists.

Jean Cousin, called founder of the National School, though no truly national art then existed.

Royal patronage of the arts

Henry IV and Louis XIII.

Louis XIV, a dictator. The Academy founded.

Seventeenth-century painters

The **Le Nain** brothers.

Poussin, the classical painter.

Claude Lorrain, painter of a sun-washed world.

Charles le Brun, painter to the King and director of the Academy.

Beginnings of fine French portraiture.

Reaction from false splendors of Louis XIV's reign.

Eighteenth-century painters

Watteau, best of the painters of the "gallant" pictures. Some of his works: Embarkation for Cythera, The Dance, The Concert, and others.

Other "gallant" painters: **Lancret**, **Pater**, **Boucher**.

Fragonard's grace and charm.

Portraits by **Quentin de la Tour**.

Genre pictures: **Chardin's** home-loving people; the moral and sweetly sentimental canvases of **Greuze**.

Landscapes by **Joseph Vernet** and **Hubert Robert**.

Mme. Vigée le Brun, portrait-painter, an exile during the Revolution.

Supplementary Reading

The Beginnings of France, 10-3429

France in the Revolution, 10-3563

The Literature of France, 18-6559; 18-6711

Britain's Art Begins, 6-1999

Early skill in illumination of manuscripts—the monasteries, the art workshops. Scottish and English monks instructed by gifted Irish monks.

Progress retarded by the Black Death.

Foreign portrait-painters at the British court

Holbein and his influence. Miniatures by **Hilliard** and the **Olivers**.

Van Dyck and the style he founded. Some of his followers: **William Dobson**, "Old" **Stone**, **Sir Peter Lely** and **Jameson**.

Sir Godfrey Kneller, whose weak, flattering style became the vogue and a bad influence.

Hogarth, a great painter, the father of all modern realism in painting—originator of a new idea in art. Some of his works: *Marriage à la Mode*, *The Rake's Progress*, and others.

Supplementary Reading

Great British Painters, 7-2327

England in the Long Ago, 4-1315

The Founding of the Nation, 4-1429
The Beginning of Freedom, 5-1565
Fighting for the Crown, 5-1679
The Times of the Tudors, 5-1813
The Times of the Stuarts, 7-2327
A Shining Splendor Comes, 2-721
Shakespeare's Plays, 3-833
Shakespeare at His Height, 3-983
Great Writers of Shakespeare's Time, 3-1117
John Bunyan and Daniel Defoe, 4-1477
Swift, Addison and Steele, 5-1619

French Art after the Revolution, 6-2077

Revival of classic interest and feeling

David, the leader in the new movement, practically a dictator in art. The break-up of the Academy.

Ingres, a great draftsman but an inferior colorist.

Prudhon, inferior in draftsmanship but skilled in effects of light and color.

Reaction away from classicism toward romanticism

Gros, a soldier who painted Napoleon's battle scenes.

Géricault.

Delacroix, the leading spirit in the new movement—his pictures composed in color.

Descamps, Fromentin, Flandrin, Delaroche, Meissonier, Regnault, Léopold Robert, Horace Vernet, and others.

Supplementary Reading

France in the Revolution, 10-3563

Napoleon and His Conquerors, 6-2199

The French Revolutionists, 6-2127

The Literature of France, 18-6711

The Golden Age of British Art, 6-2109

Sir Joshua Reynolds—many portraits in the grand manner, reflecting the old masters.

Thomas Gainsborough—a painter of nature—landscapes and portraits of women and children. Some of his works: The Blue Boy; Georgianna, Duchess of Devonshire; Mrs. Siddons; and others.

George Romney—portraits and historical scenes, interesting in composition, color and vivacity of effect.

Other English portraitists: John Hoppner, John Opie, Sir Thomas Lawrence.

Scottish portrait-painters: Allan Ramsay and Henry Raeburn.

Supplementary Reading

Great British Painters, 7-2327

From the Stuarts to Napoleon, 6-2097

Napoleon and His Conquerors, 6-2199
Doctor Johnson and His Friends, 5-1867
Poetry Goes Back to the Country, 6-2027
The Master of the People's Songs, 6-2135
The Tellers of Tales, 6-2253

A Century of Change in Art, 6-2229

Landscape in England—the open-air school.

Richard Wilson, a forerunner, touched by classic influences.

George Morland—landscapes with figures and domestic animals.

"Old Crome"—landscapes with trees, surrounded by light and air.

John Constable—the "father of modern landscape." Some of his works: The Hay Wain, The Cornfield, and others.

Richard Bonington—seashore and street scenes.

J. M. W. Turner—painter of the natural world seen through a dream glory of light. Some of his works: The Sun Rising through Vapor, The Fighting Téméraire Towed to her Last Berth, and others.

Water-colorists

Girtin, Cozens, Turner, Cotman, Bonington, Stothard, Peter de Wint, David Cox, Copley Fielding.

Sir Edwin Landseer, a painter of animals.

The Pre-Raphaelite Brotherhood

The leading members: Holman Hunt, Sir John Millais and Dante Gabriel Rossetti.

Associates and contemporaries of the Pre-Raphaelites: Ford Madox Brown, Sir Edward Burne-Jones, Albert Moore, Lord Leighton, George Frederick Watts, and Sir William Orchardson.

Supplementary Reading

Great British Painters, 7-2327

The Wonderful Century, 7-2293

Wordsworth and His Friends, 7-2353

Byron, Scott, Shelley and Keats, 7-2489

Scott and His Stories, 7-2625

The Books of Dickens and Thackeray, 8-2731

The Writers of Essays, 8-2865

The Historians, 9-3201

Carlyle and Ruskin, 9-3311

The Fame of Alfred Tennyson, 10-3469

The Story of the Brownings, 10-3687

Nature Artists of France, 7-2369

Out-of-door study of nature, following the influence of the English painters Constable and Bonington.

The Fontainebleau School: Théodore Rousseau, Diaz, Jules Dupré, Daubigny, Chintreuil.

Painters of animals: Troyon, Rosa Bonheur, Jacques, Brascassat.

Corot—a school in himself—his genius, to give spiritual beauty to earthly things.

Jean François Millet, the greatest portrayer of peasant toilers.

Later nature painters: Cazin, Pointelin, Lhermitte, Harpignies.

Supplementary Reading

France in Modern Times, 11-3813

French Art Goes Out of Doors, 7-2475

Naturalism, leading to plein-airism and impressionism. The study of light, the chief problem.

Courbet and **Manet**, leaders in naturalism.

Bastien-Lepage and **Dagnan-Bouveret**, famous plein-airists.

Monet and **Pissaro**, leading impressionists.

Puvis de Chavannes, great decorative artist, opposed to impressionism.

Other painters who did not follow the new movement: **Moreau** and **Baudry**.

The Modern Movement in French Art, 8-2709

Many experiments in the use of pigment—tendency away from pure art in the direction of science.

Impressionists: Cézanne, Matisse, Renoir, Gauguin, Van Gogh, Degas, Carrière, Besnard, Sisley, Signac, Utrillo.

European Artists of Late Years, 8-2851

Russian: Vereshchagin, Ilya Répin, Jan Styka.

Swiss: Böcklin (who worked in Germany), Hodler, Burnand.

Scandinavian: Anders Zorn, Carl Larsson, Fritz Thaulow, Edelfelt.

German: Menzel, Lenbach.

Dutch and Belgian: The Maris brothers, Anton Mauve, Josef Israels, Wauters, Leys, Bosboom, Mesdag.

Spanish: Fortuny, Sorolla, Zuloaga, Picasso (high development of impressionism).

Italian: Boldini, Segantini, Previati, Ettore Tito, Modigliani, and others.

French: Simon, Dauchez, Ménard, Cottet, Bonnat, Carolus Duran, Henner, Bricard, and others.

British: Lavery, Orpen, Strang, Wilson Steer, Augustus John, William Nicholson, Munnings, Shannon, Brangwyn, and others.

The Way We Have Come, 9-3069

A brief summary of European painting from the Italian primitives to our own day.

Painting in the United States: I, 9-3325

Portrait-painters of the eighteenth and early nineteenth centuries:

Benjamin West, John Singleton Copley, Charles Willson Peale, Gilbert Stuart, Edward Malbone (miniatures), Thomas Sully, John Neagle, Chester Harding, Henry Inman, Charles Loring Elliott.

Early historical and figure painters: John Trumbull, Washington Allston.

Beginnings of true landscape

The Hudson River School: Thomas Doughty (a forerunner), Thomas Cole, Asher B. Durand, J. F. Kensett, and others.

Landscape of the grand style: Albert Bierstadt, Thomas Moran, Frederic E. Church.

New influences and impulses

Art study in Germany; later in France.

The Centennial Exposition at Philadelphia in 1876.

William Morris Hunt, an inspiring teacher.

George Fuller, a figure-painter modern in his effects.

John La Farge, a leader in decorative color work and design.

Frank Duveneck and **William M. Chase**, brilliant in technique and notable as teachers.

Supplementary Reading

Building Homes in the New Land, 2-543

Child Life in Colonial Days, 3-965

The Revolution, 4-1157

Building the New Nation, 5-1695

The Growing West, 6-1905

The Brothers' War, 7-2427

American Literature in Colonial Times, 12-4445

American Literature to the Civil War, 13-4625; 13-4725

Painting in the United States: II, 10-3447

George Inness, whose fine, poetic work spans various stages in the development of American landscapes.

Other painters of poetic landscapes: Wyant, Homer Martin and Tryon.

Winslow Homer, distinguished and truly American painter of marine views. Some of his paintings: *Eight Bells*, *Maine Coast*, *Northeaster*.

Whistler, living in Europe and delicately selecting among many influences, forms his own style. Some of his paintings: *Nocturnes*, *The Music Room*, **portrait of his mother**, and others.

Sargent, most famous nineteenth-century portrait-painter, working in France, England and America.

Other noted American artists who have lived in Europe: Edwin A. Abbey, Elihu Vedder, Mary Cassatt.

Mural decoration (impulse of the World's Columbian Fair at Chicago in 1893): Francis D. Millet, John W. Alexander, Kenyon Cox, Edwin H. Blashfield, and others.

Figure painters: Eastman Johnson, Thomas Eakins, George de Forest Brush, Thomas Dewing, Robert Henri, Charles W. Hawthorne, Irving Couse, Frank Benson, William Glackens, Cecilia Beaux, Arthur B. Davies, and others.

Abbott Thayer, who combined vision of beauty with knowledge of nature.

George Bellows, rated as the most distinctly "native" American painter.

Later landscape-painters: Ralph Blakelock, Albert Ryder, Willard Metcalf, Francis Murphy, John H. Twachtman, Childe Hassam, and many others.

Supplementary Reading

The United Nation, 8-2669; 9-3207

American Literature, 1865-1900, 13-4815

Recent American Writers, 14-5007

Painters of Canada, 10-3699

Paul Kane, first professional painter—pictures of Indian life.

Early artists of European birth: Daniel Fowler, Kreighoff, John Fraser, L. R. O'Brien, Jacobi, and others.

Foreign study for native painters. Royal Canadian Academy established in 1880.

Painters in various fields: Robert Harris, Homer Watson, William Cruickshank, Frederick Verner, George A. Reid.

Canadian artists well known in other lands: Horatio Walker, Wyatt Eaton, William Brymner, C. W. Jeffreys (distinctly Canadian landscape), Edmund Wyly Grier (notable portraiture).

Decorative painting: Frederick S. Challener, J. E. H. Macdonald.

Winter scenes and other striking landscape: Maurice Cullen, Clarence Gagen, A. Y. Jackson, Frank H. Johnston, Franklyn Brownell.

Marine painting: Robert F. Gagen, McGillivray Knowles.

Animal painting and other nature studies: Frederick S. Palmer, Frederick S. Haines, Mrs. George A. Reid, Arthur Heming (author-artist).

Later portrait-painting: Laura Muntz, Gertrude des Clayes, Frederick Varley, Ernest Fosberry.

Supplementary Reading

Canada as an English Colony, 3-941

Canada as a Nation, 4-1483

The French in Canada, 8-2949

Canada's Poets and Prose Writers, 14-5103; 15-5367



Sculpture

The First Sculptors, 11-3873

Man's first attempts at shaping clay and making ornamental design.

Egyptian—characterized by hugeness and repose; of great technical

skill but limited by strict conventions. Typical animal convention, the sphinx.

Assyrian and Babylonian—characterized by brute activity and exaggerated form. Records of war and the hunt. Typical animal conventions, five-footed winged bull and lion. Wide influence.

Persian—influenced by both Egypt and Assyria and characterized by ornate detail of decoration.

Supplementary Reading

Babylonia and Assyria, 2-647

Egypt's Fascinating Story, 3-807

Persia and Its Story, 3-909

The Early Days of Greece, 11-3987

Ægean art, drawing inspiration from nature; its sculpture generally on a small scale. Single large example: Gate of the Lions at Mycenæ.

Greek Sculpture.

Earliest Greek sculpture in various materials.

Acherms of Chios makes a statue showing movement and expression.

Early sculptures on the island of Ægina.

Great impulse after the Persian Wars.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Golden Years of Greece, 12-4215

Doric ideal—physical perfection.

Athenian ideal—beauty of thought.

Polyclitus—his statue of the athlete Doryphorus, the "rule" for proportions of man's figure.

Myron—his Discobolus, breaking from the convention that a sculptured body should be vertical in line.

Phidias, the greatest sculptor of all time. Some of his works: colossal statues of Athene and Zeus, the Parthenon frieze, and sculptures on other buildings.

Followers of Phidias. The Venus of Milo, probably made by one of them.

Supplementary Reading

The Story of the Iliad, 6-1983

The Glory That Was Greece, 3-1069

The Great Greeks, 2-701

The Followers of the Golden Age, 12-4327

Praxiteles—statues of freedom and grace, gaining great popularity—great skill of execution. Some of his works: Hermes with the baby Dionysus, Eros, The Faun, and others.

The Niobe group, authorship uncertain—Praxiteles or Scopas?

Scopas—expression of passion or suffering introduced upon faces of his statues.

The Mausoleum at Halicarnassus. Advance in treatment of drapery in the frieze.

The Victory of Samothrace.

Lysippus—a worker in bronze, no originals remaining. Employed by Alexander the Great. The Apoxyomenus, a new athletic type.

The Old Empires and New Europe, 12–4459

The Hellenistic age, following the conquests of Alexander.

Extremes of suffering expressed in sculpture. The Laocoön, the Dying Gaul, the frieze on the altar at Pergamum, the Colossus of Rhodes, and other large works.

The Apollo Belvedere and other famous statues.

Sculptures of children, introduced by Boethus.

Græco-Roman period. Art and artists of Greece transported to Italy. Roman copies of Greek masterpieces.

Byzantine art.

Early Christian sculpture in Gothic churches—the draped statuette replacing the nude statue.

Supplementary Reading

The Grandeur That Was Rome, 4–1191

Italy's Immortals, 13–4603

Italian sculpture starting in the thirteenth century.

Nicola Pisano, combining Roman and Gothic elements.

Ghiberti—his bronze doors for the Baptistery at Florence.

Donatello—his great equestrian statue of Gattamelata and a great variety of fine sculptured work.

Followers of Donatello.

Verrocchio—his famous equestrian statue of Colleoni.

Jacopo della Quercia, noted sculptor of Siena.

Famous Florentine families of sculptors: the Rossellini, the Della Robbias and their terra-cotta work, Andrea and Jacopo Sansovino.

Michelangelo—a sculptor who saw men as giants weighed down by Fate; fascinated by the anatomy of the human form. Some of his statues: David, Moses, figures for the Medici tombs, and others.

Three clever craftsmen: Cellini, Giovanni da Bologna, Bernini.

Supplementary Reading

The Builders of Florence, 5–1735

The Makers of Venice, 4–1455

Italy and Its Story, 12–4407

France and Her Neighbors, 13–4699

Free sculpture slowly developed from architectural decoration.

In Germany

Fine woodcarving.

Sculpture

Stone work and bronze statuary.

Adam Krafft and Peter Vischer.

In France

Fourteenth-century sculptors (French and Flemish): Claus Sluter and his followers.

Sixteenth-century sculptors: Michel Colombe, Jean Goujon, Germain Pilon, Barthélémy Prieur, and others.

Seventeenth-century sculptors (many under patronage of the kings, especially Louis XIV): Simon Guillain, François Girardon, Pierre Puget, Antoine Coysevox, the Coustous, Robert le Lorrain, and others.

Eighteenth-century sculptors (release from classic restraint): Jean Baptiste Lemoyne, Etienne Maurice, Falconet, Bouchardon, Jean Baptiste Pigalle, Jean Antoine Houdon, Clodion, Pajou and others.

Nineteenth- and twentieth-century sculptors: Barye, Rude, Carpeaux, Rodin, Bartholomé, and others.

Supplementary Reading

The Beginnings of France, 10-3429

France in the Revolution, 10-3563

France in Modern Times, 11-3813

Britain and Later Europe, 13-4853

In England

Gradual emergence of free sculpture from the decorations of Gothic buildings.

Figures in wood, stone, bronze and alabaster.

Grinling Gibbons, sculptor and decorator of the seventeenth and eighteenth centuries.

Eighteenth-century sculpture (imitative of classic style): Thomas Banks, Joseph Nollekins, John Bacon, John Flaxman.

Nineteenth- and twentieth-century sculpture: Alfred Stevens, John Henry Foley, G. F. Watts, Alfred Gilbert, Onslow Ford, Sir Hamo Thornycroft, Alfred Drury, Lord Leighton, Goscombe John, Bertram MacKenna, John Swan, and others.

The classic revival in Europe, about 1800.

Antonio Canova of Italy, the leading spirit.

Bertel Thorwaldsen of Denmark, a noted exponent.

Modern European sculptors: Constantin Meunier of Belgium, Ivan Mestrovic of Jugo-Slavia, Jacob Epstein in England.

Sculpture in the United States, 14-4933

A late and rapid development.

First carving in wood.

Early nineteenth-century sculptors: William Rush, John Frazee, Hezekiah Augur.

Foreign training and Italian influence: Horatio Greenough, Thomas

Crawford, Hiram Powers, Randolph Rogers, Erastus D. Palmer, W. W. Story, Harriet Hosmer, and others.

Equestrian statues and portraiture, 1850–1890: Thomas Ball, Clarke Mills, Henry Kirke Brown, Olin Levi Warner.

J. Q. A. Ward, an admirable sculptor and an inspiring influence. Some of his works: *The Indian Hunter*; statues of Washington, Horace Greeley, Henry Ward Beecher, and others.

The Centennial Exposition at Philadelphia in 1876, an education.

Augustus Saint Gaudens—"the most illustrious figure in American art." Some of his works: *Admiral Farragut*, the *Lincoln Monument* for Chicago, the *Sherman statue* in New York, and others.

Daniel Chester French, whose work combines great technical skill with vision of truth and beauty. Some of his works: *Gallaudet*, the *Lincoln Statue* in the *Lincoln Memorial* at Washington, the *Angel of Death* and the *Sculptor*, the *Minute Man*, and others.

The Columbian Exposition at Chicago in 1893, a great opportunity and a strong impulse.

Leading sculptors since 1890: Frederick MacMonnies, Paul W. Bartlett, George Grey Barnard, Gutzon and Solon Borglum, James Earle Fraser, Hermon A. MacNeil, Cyrus E. Dallin, Charles H. Niehaus, Herbert Adams, Lorado Taft, Charles Grafty, Robert Aitken, and many others.

The Sculptors of Canada, 14–5075

Monumental sculpture and portraiture: Hamilton P. MacCarthy, George William Hill, Louis Philippe and Henri Hébert, Walter S. Allward.

Animal sculpture: A. Phimister Proctor.

Sculpture of athletic youth: Dr. R. Tait Mackenzie.

Sculpture of Canadian life and labor: Aurèle De Foy Suzor-Coté, Alfred Laliberté, Frances Loring, Florence Wyle, and others.



Architecture

The Buildings of the Old World, 14–5207

Architecture, "history in stone."

Primitive structures of stone.

Between Tigris and Euphrates

Construction of brick and sun-dried clay; buildings on platforms and terraces.

Chaldean, or Babylonian

Temples, palaces and ziggurats (holy mountains).

The wonder of Babylon and its imposing towers.

Assyrian—the grandeur of Nineveh in its palaces.

Persian—architecture of Assyria and Egypt combined with added richness of ornament; palaces at Susa and Persepolis.

In Egypt

The most colossal and enduring forms of building.

Column-and-slab structure.

Pyramids and other tombs.

Temples at Karnak and Luxor, Abydos, Philæ and elsewhere.

Pelasgic architecture in the Ægean region: the Treasury of Atreus, the palace at Tiryns; the Minoan palace at Knossos, Crete; and other structures.

Supplementary Reading

Babylonia and Assyria, 2-647

Egypt's Fascinating Story, 3-807

The Greek and Roman Builders, 15-5341

Greek architecture—logical, perfect in proportion, inspired by sense of beauty.

The three orders: Doric, Ionic, Corinthian.

Examples: the Parthenon, the Erechtheum, the Choragic Monument of Lysicrates, and others.

Theatres, stadia, gymnasia, etc.

Roman architecture—borrowed from Greek and Etruscan.

Differences between Greek and Roman: the Greek, the work of artists; the Roman, the work of builders, for strength and enduring qualities.

Arch and square and columnar structure.

Kinds of buildings: bridges, aqueducts, temples, palaces, baths, amphitheatres, circuses, etc.

Materials: stone, brick, terra-cotta, concrete.

Examples: the Colosseum, the Pantheon, the Temple of Vesta and others.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Grandeur That Was Rome, 4-1191

The Eastern Builders, 15-5465

Saracenic architecture

Arabesque designs—brilliant geometric ornament.

Honeycomb treatment of surface.

The Moors in Spain

Famous examples of their art: the Giralda Tower, the Alhambra, the mosque at Cordova (Roman influence).

Mosques at Constantinople.

Materials, not lasting.

Architecture in India

Rock temples of Buddha.

Marble temples of the Jain faith; wealth of fantasy in carvings.

Hindu, or Brahman, temples.

Horizontal rows of sculptured design at variance with architectural form.

Influence of invasion by the Saracens, for better style.

Examples: the Kutab Mosque, the Taj Mahal, and others.

Architecture in China

Changeless through centuries.

Characteristic roof treatment and intricate decoration.

Temples, pagodas and palaces.

Architecture in Japan

Of the same general class as the Chinese, but daintier and lighter.

Supplementary Reading

The Rise and Fall of Turkey, 13-4797

India, the Pearl of the East, 8-2695

The Chinese Republic, 2-421

Japan and Korea, 2-561

Architecture in Christian Times, 16-5715

Basilican churches: St. Paul-outside-the-walls, Rome; St. Apollinare, Ravenna, and others.

Byzantine churches: St. Sophia and St. Saviour, Constantinople; and others. St. Mark's, Venice, Byzantine touched by Gothic and other influences.

Romanesque churches (developed from basilican), in France, Italy and Germany: L'Abbaye-aux-Dames, Caen; Notre Dame, Avignon; Cathedral, Baptistery and Leaning Tower, at Pisa; Cathedral of Worms; and others.

Supplementary Reading

The Beginnings of France, 10-3429

The Beginnings of Germany, 11-3959

Italy and Its Story, 12-4407

Gothic Architecture in England, 16-5963

Succeeding the English Romanesque, known as the Norman, style; strong traces to be seen in Durham, Peterborough and other cathedrals; round churches of the Crusaders.

Three periods of English Gothic

Early English—thirteenth century: Salisbury, Lincoln, Lichfield, and other cathedrals.

Decorated Gothic—fourteenth century: the Lady Chapel, Ely; parts of Exeter and other cathedrals; tombs, monuments and shrines.

Perpendicular Gothic—fifteenth century: Henry VII's Chapel and the Church of St. Margaret, Westminster.

Supplementary Reading

The Founding of the Nation, 4-1429

The Beginning of Freedom, 5-1565

Fighting for the Crown, 5-1679

The Golden Years in Europe, 17-6155

In France

Gothic supplanting and transforming Romanesque.

Lancet Gothic—twelfth century: St. Denis, Notre Dame, Lens, Soissons and other cathedrals.

Rayonnant Gothic—thirteenth century.

Flamboyant Gothic—fourteenth and fifteenth centuries.

Several periods often combined in one building.

In Germany

Transition from Romanesque to Gothic—latter half of thirteenth century.

“Hall” type of churches: St. Elizabeth, Warburg; Munich Cathedral, and others.

French Gothic: Cologne Cathedral, finest example.

In the Low Countries

Belgium: Antwerp Cathedral, of the Flamboyant period; Ypres, Ghent, and others show changing periods.

Town halls and guild halls, characteristic Flemish architecture: Cloth Hall at Ypres and others.

Holland: cathedrals at Utrecht, Haarlem, etc., simple but fitting.

In Italy

Pure Gothic rare in many parts, especially the south.

Milan Cathedral, resembling German Gothic—flawless in style and proportion.

The Duomo, Florence, Italian Romanesque, a monument of Florentine history.

San Francesco at Assisi, simple in style.

Cathedral at Siena, and many other famous churches.

In Spain

Gothic influence strongest in north, but with modifications.

Seville Cathedral, fifteenth and sixteenth centuries, second largest church in the world.

Moorish and other influences impressed on Spanish building—a record of history.

Supplementary Reading

The Beginnings of France (illustrations), 10-3429

France in the Revolution (illustrations), 10-3563

Germany as It Is (illustrations), 12-4161

Belgium and Her People (illustrations), 15-5495

Italy as It Is (illustrations), 13-4565

The Story of Spain (illustrations), 14-5039

The Renaissance in Italy, 17-6297

A reflowering of classic ideals.

Princely houses in Florence: the Riccardi, Pitti, Uffizi and other palaces.

Brunelleschi, first great architect of the Renaissance.

Fine buildings in Genoa and Milan.

The Certosa at Pavia—combining Gothic and Renaissance styles.

Bramante, architect of St. Peter's, Rome, and parts of the Vatican.

Michelangelo as architect—the dome of St. Peter's and other works.

The **Baroque**, or **Rococo**, style, the degeneration of Renaissance.

Venetian palaces and other buildings: the Palace of the Doges, Church of Santa Maria dei Miracoli, and others.

Supplementary Reading

The Builders of Florence, 5-1735

The Makers of Venice, 4-1455

Four Centuries in Europe, 18-6489

In England

The evolution of the English house.

The Tudor period.

The Renaissance and **Inigo Jones**.

Christopher Wren and his work.

Eighteenth-century architecture.

Gothic and classic revivals.

Nineteenth- and twentieth-century buildings.

In France

The châteaux from medieval times.

The Renaissance, and Italian influence: The Louvre—a masterpiece of four centuries; the Palace of Versailles; many churches.

Rococo influence and a classic revival.

The nineteenth century, with Gothic and Renaissance influences: the New Opera in Paris, and other buildings.

In Germany

Castles and public buildings.

Gothic feeling persisting through Renaissance influence.

Churches combining various styles.

In the Low Countries

Renaissance buildings and additions to Gothic structures: guild houses, town halls, churches influenced by Rococo style, and other buildings.

In Spain

Revival of classic feeling under Juan de Herrera and other architects: the Escorial and other buildings.

Renaissance influence: many palaces and churches. A mingling of styles—Moorish, Gothic and Renaissance; rich decoration: The Alcazar, Granada Cathedral, St. Estéban (Salamanca) and others.

Supplementary Reading

Great Builders of London, 12-4353

France in Modern Times (illustrations), 11-3813

The Story of Spain (illustrations), 14-5039

Architecture in the United States, 18-6679

Tendencies imported from parent lands: Spanish Renaissance, German, Dutch, English ("colonial") traditions.

Early building, chiefly of wood and simple in design.

Charles Bulfinch, New England, first professional architect in the land.

From the Civil War to 1880, pretentious imitation of foreign modes.

Churches by Upjohn and other architects: Trinity Church, Grace Church and St. Patrick's Cathedral, New York, and others.

"Richardson Romanesque": Trinity Church, Boston; Pittsburgh Court House; and other buildings.

From 1890 to the present.

New impulses under able architectural leaders.

Three main forces: Classical, Gothic, American Domestic.

The Columbian Fair at Chicago, 1893, an opportunity and a revelation.

Gothic and Tudor modes adopted by many universities.

Steel and ferro-concrete construction for great city buildings—a new development, distinctly American.

Supplementary Reading

How Man Makes Stone, 7-2305

See also illustrations for articles on the various sections of the United States and on the cities of Washington, New York and Chicago.

The Art of Furniture-Making, 18-6767

(Related to Architecture)

In England

Early developments: Saxon, Norman, French, Flemish, Dutch, and Italian Renaissance influences.

Queen Anne's reign, beginning of truly English mode.

Chippendale and the introduction of styles showing more lightness and grace.

The **Adam brothers**—architects who included all details of decoration and furnishing in their plans.

Hepplewhite, designer of beautiful chairs and other furniture.

Sheraton, an artistic genius of rare skill and taste.

In America

Crude beginnings in the colonies.

English furniture copied by cabinet-makers.

The **Windsor chair** adopted and developed.

Master craftsmen in woodwork: **Samuel McIntire** and others.

Duncan Phyfe, a master designer and maker of furniture.

For pictures showing early American furnishings see also 2-547 and 3-967.

Music

The Beginnings and Growth of Music, 19-6897

Primitive music and its sources.

Evolution of instruments: stringed instruments, wind instruments, percussion instruments.

Early scales and modes.

Wandering singers: troubadours, minnesingers and meistersingers.

Part-singing, counterpoint: the "round," or canon.

Illustrations of counterpoint and harmony.

Supplementary Reading

The Waves of Sound, 17-6313

Music and Noise, 18-6437

Wonderful, Wonderful Music, 18-6695

The Behavior of a Sound, 19-6851

How We Got the Piano, 5-1795

The Song That Found a King, 16-5827

Great Classic Composers and Their Works, 19-7071

A change from the church modes used by Palestrina.

Johann Sebastian Bach: noble and majestic compositions for the organ; the "tempered scale" of to-day introduced in his Well-Tempered Clavichord series.

George Frederick Handel, composer of great oratorios: The Messiah, and other works.

Franz Josef Haydn, father of the symphony and of the modern orchestra; the Surprise Symphony, the oratorio of The Creation, and other works.

Mozart: clear, flowing music in perfection of form: symphonies, operas, and other works.

Gluck, a composer who reformed the opera.

Ludwig van Beethoven, whose music expresses the restless surge of emotion: nine great symphonies, and other works.

A transition from classic to romantic style.

Franz Schubert, a composer with a rare gift for melody; writer of symphonies and songs: the Unfinished Symphony, the Erl-King, and other works classic in form but romantic in feeling.

Mendelssohn, composer of charming polished music: Midsummer Night's Dream Overture, the oratorio Elijah, and other works classic in form but romantic in feeling.

Supplementary Reading

Composers of Great Music, 19-6913

Romantic Composers and the Music of To-day, 19-7149

Robert Schumann, the first of the truly romantic composers; story-telling and descriptive music—symphonies, piano pieces and songs.

Music

Frédéric Chopin, introducing a new style of composition for the piano; beautiful poetic piano pieces.

Verdi: melodic operas.

Berlioz: interesting orchestral works, *programme music*.

Franz Liszt: compositions and transcriptions for the piano: Hungarian Rhapsodies, and other works.

Richard Wagner, composer of a new form of opera, the *music drama*.

Johannes Brahms: classic forms enriched with new beauties: symphonies, concertos, chamber music, and other works.

Tschaikowsky, composer of mournful music that stirs the emotions.

Franck, inspired by church music of Bach's time.

Richard Strauss: powerful orchestral works.

Impressionism and other modern tendencies.

Debussy and Ravel.

Scriabine, Stravinsky, Schönberg.

American Composers

MacDowell: descriptive music.

Gershwin: serious music based on jazz.

Supplementary Reading

Composers of Great Music, 19-6913

The Literature of Germany, 17-6265

Lohengrin, or the Swan-Knight, 8-2957



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WITH INTRODUCTIONS

Addressed to the Child, the Parent and the Teacher

BY

A N G E L O P A T R I

Principal, Public School 45, Bronx, New York

OUTLINES, QUESTIONS AND TESTS

IN

GEOGRAPHY, HISTORY, CIVICS, LITERATURE, NATURE STUDY
AND BIOLOGY

BY

ISABELLA STEWART

SCIENCE

BY

HARRY A. KRAIL

Assistant Principals, Public School 45, Bronx, New York



INTRODUCTION

MY CHILDREN: If suddenly one day there should come to you a gentle and kindly stranger offering you Aladdin's lamp or Cinderella's slipper or the magic carpet itself, you would consider yourself the most fortunate of children. There would be nothing you could not wish for and have promptly. You could go anywhere, do anything you ever dreamed of doing and live happily ever afterward.

Here then is your magic gift—this set of books. The quality that most delights us in a story is its truth. Neither you nor I would care a whit about a story that was not true. For us Cinderella finds her slipper and her prince. The genii spring from the earth at our bidding. Jack does slay the giant and carry the fortune home to his mother. More than ever is magic abroad in the world this day.

We can whisper a message across the sea and catch the answering whisper as it flashes back. We can throw a beam of light around the earth while you could say *Abracadabra*. We ride on the ocean and fly high in the air and harness the moon to our bidding. Magic, all of it, but the magic of truth and the knowledge of it. Armed with them the world is yours. No fairy godmother could wish you more. No friendly magician could do for you what you can do for yourself if you possess knowledge and understanding.

From the beginning men have searched out secrets of earth and sky and the places under the earth. For centuries they have searched and written down their findings and passed on leaving their stories behind them to make the way plainer for those who followed. Each generation has read, searched, written and passed on in its turn. Each new child of earth has read the messages and found in them the old command, "Seek and ye shall find." Each healthy, happy child has caught up the challenge and presses forward. Each has started where some older searcher has laid down his tools, left his unfinished task.

Some of these elders watched by night on lonely hills studying the ways of the stars. Year after year they watched and set down what they saw, a great line of scholars, so that now there is a long story of these mysterious torches of the sky. A long story yet unfinished. Perhaps you are to be one of those who will take up the tale. Who knows?

Others watched and listened and traveled about the world to see and tell of the strange ways of men. Much of what they have written is sad enough but there is a store of it that will make you thrill with pride to read and remember that you, too, are a child of man. You, too, can live nobly and work great deeds. What men have done is the starting place for you. History holds much that is precious for you.

Always there has been a group tormented by the *WHY* of things. Why will a stone drop swiftly and a feather float about? Why does it thunder and why does it snow? What makes the wind blow? Why does fire burn and water quench? Always they knew that for every *why* in the world there is a *because*, and they searched for it. Their findings are written in the books of science, and science, my children, is magical truth. True magic for you. Seek and you will find it.

When I was a boy I heard a talking machine. Not such as you hear to-day, but very wonderful to me. I wanted so much to know how the voice got into the box, but there was none to tell me. I dared not ask the teacher and my mother did not know any more than I did about it. She wanted to know, too, but even the wisest neighbor of all did not know and could not tell us how the voice got into the box. You know all about it.

But if you don't and if you very much wish, as I did, to find out, all you have to do is to look in Volume 20 and find Sound, page 7620, and there you will find a long list of headings that promise you such delightful stories and such a treasure-trove of knowledge—and magic—that your mother will have to take your books away to get you to bed. Lucky child!

So it would seem, my children, that there is a great plan of life and you and I and

INTRODUCTION

the others about us have each a share and a place in the scheme. First of all we must know what has been done in the world and then start out to do our bit. We need never worry about it—just know what we are about, do the very best we can to make ourselves and those about us happy and carry this old world ahead just the little bit that is our portion.

You have here under your hand in this *BOOK OF KNOWLEDGE* the tools with which your forefathers toiled to carve out the steep places life offered them. You have here the materials from which they drew the magic that has lighted your homes, heated them, made them safe and clean. You have here the wisdom of your race, its art, its poetry, its idealism, its science, its life of service.

If you read it carefully, as you need it, you will find that it opens wide the door of opportunity to you. If you use the knowledge you find here wisely you will find yourself traveling new paths to new fields. If you form the habit of reading about the things that are new and strange you will find that you arrive a little farther beyond your starting place. And that, my child, is what education means! An old road, a tried road, leading you on to explore the new and untried route to your own success, the special niche that you will carve out for yourself.

THE *BOOK OF KNOWLEDGE* will help you travel far on that road. Take it with you and use it as Aladdin used his lamp. It will not, I promise, ever fail you.



TO PARENTS: You want your child to have the best that life can offer. You want him to succeed where you failed. You want him to enjoy where you could only look on. You want him to fulfill your dreams. To these ends you make heavy sacrifices. For the good of your child you carry a heavy burden.

You give up much that would lighten your load to give the child every advantage. You send him to the best school. You live in the best possible neighborhood for his sake. You plan to have him work and study and play with children who are fine and clean and wholesome, knowing how powerful a force a child's companions can be. But when all is said and done the child comes back to you as the source of his life. He will continue to come to you throughout his life, and you will know the beautiful relationship of parent and child in its fullness, if you make his coming worth while.

In the early days you are the comforter. You heal his bruises. You praise each fumbling effort. You encourage him after each childish defeat. He is close to you and the relationship is intimate and easy. Then the day comes when his horizon widens. He discovers much that is new and strange and comes to you for the right word. Well for you if you have it, for on that depends your future relationship with your child.

Out of your learning, out of your experiences, out of the sum of your life, you answer his questions. The whole of you is not enough. The field of knowledge is too vast for any one mind to compass. You must turn to the books for help.

"Mother, mother, I have a new job. We've finished the animals. Now we must do natural phenomena. Mine is rain. Everybody got something. Pat's is the snow and Bill's is the wind. Mine's easy. Rain. 'N the teacher said I had to learn a poem about the rain, too.

"I told her I knew a poem, two of them. 'The rain is raining all around,' and 'Rain, rain, go away,' but she smiled at me and told me to go learn a grown-up-er one. What do you know about rain, mother? I got to know a lot.

"We got to find out what rain means to man. It's the same as we did for the animals, only not exactly. I got to know the whole story in a week and learn the poem, too. What do you know about rain, Mom?"

"Just the usual things, I suppose. Rain is condensed vapor that falls from the clouds. But we can look it up to-night in *THE BOOK OF KNOWLEDGE* and learn a whole lot more."

Evening comes and mother and child turn to the books. "First I'll look in the index. Here it says 'Rain, Volume 8, page 2021.' Here's more. 'Causes of rain; how to measure rain; poems about rain.' It's all here. Gee, I'll have more'n anybody, Mom."

"There's quite a lot, my boy. Best take a bit at a time. You read about the rain and I'll listen, and then you tell me what you think about it. Then I'll tell you my sto-

INTRODUCTION

ries about the rain: how it nearly flooded out the town where I lived by making the river rise and rise; how I went out after the half-drowned chicks that strayed into the tall grass in the June thunder showers. And the big cistern we used to have to hold rain water. O, lots of things. You begin."

So you and your child are merged in the problem that will carry you far ahead on the road of knowledge and carry you together, which is most important to you. You will consult five volumes of *THE BOOK OF KNOWLEDGE*. You will talk over what you read. You will tell your tale of personal experience. You will weave your life into his. Valuable as the habit of searching after knowledge must be to the child far more so will be the close and harmonious association of parent and child. Something is born there between them that will last a lifetime.

But the child is not always in search of knowledge when he appeals for help. "The teacher is a mean old thing. Look what she did. Gave me a C for my science book and another for my geography. Two C's. I know I deserve higher. She gave Billy a B and his isn't any better. Isn't that good work, Mom? And she only gave me C. It's a skin."

The first inclination of a parent is to side with the complaining child. Be careful. Life will measure him impersonally and on severe standards. The sooner he learns to do this for himself the sooner he will succeed. The sooner he can look at himself critically and honestly the sooner he will learn to measure up to his best.

Take nobody's word for the child's ability and his product. See for yourself. Turn to the Test pages of *THE BOOK OF KNOWLEDGE* and you will find the standards and measurements of science and geography and any other school work your child does. Measure your child's work on that basis.

These standards and measurements are the result of testing and measuring the results of the work of thousands of school children. They are impersonal as a foot rule. The child will accept them as final and judge himself accordingly. By using them he will become conscious of his purpose in going to school, learn to work independently and without the disturbing emotions that rise out of teacher-pupil antagonisms. Once in this attitude toward his education he is well on his way to maturity and success.

The ideal that holds high place in the hearts of men is that of the teaching mother and the learning child. It is the symbol of man's chief desire in life. He knows that his stay here is brief. He knows he will lay down his work unfinished. He hopes that his child will take it up and go on beyond where his fathers left off.

The mother must prepare the child. She must teach and listen and lead and share with him the experiences of his growing time. Always there has been a great gap between home and school. Vainly the mothers have tried to bridge it by helping the children with their home work. The child protested, saying, "The teacher does not mean that." "She doesn't do them that way." "That isn't the kind we do."

If you take this Course of Study and turn to the grade where your child belongs, you will have before you the teacher's plan and the pupil's task. You can know exactly what has gone before, you can know accurately what the teacher is aiming for each day. You can be right and go ahead, helping your child in school and at home. You can help him to help himself, secure in the knowledge that school and home are at last linked and working harmoniously. With a gesture as easy as turning the pages of a book you have doubled your child's opportunities and multiplied his powers. That, I take it, is the high desire of all mothers to whom this Course of Study is offered.



TO THE TEACHER: We who have to do with children know how little, how very little, we can teach them. We know, too, that much of what we teach, much of what they so carefully prepare and recite, will be forgotten with the withering of the graduation flowers.

But we are secure on some points: We know that we can help a child, according to his power, to find his talents and increase them. We can set his tastes. We can teach him where to look for information and help him to form the habit of looking for it and using it rightly. We can give the child a certain attitude toward life that will bring suc-

INTRODUCTION

cess and happiness. Beyond that we can do little. From there on each child must help himself.

The greatest contribution the classroom can make to the child's formal education is teaching him to read. A child who can read intelligently has the tools of his education in his hands. He can, if he can use a good reference book, help himself toward any goal he may set. This self-help is the aim of all good teaching.

The text books are, of necessity, meagre. Their content is limited by the size of the book and the time allowed for its study. The teacher's energy is limited also. Nothing so depletes one's vital forces as a teaching day. It is plain recitations must be pared down to the bare essentials. School conditions demand rigid economy of time and subject matter and energy. Instruction must be pointed and brief and clear.

This is the day of specialized knowledge, the day of speed and accuracy. No time is allowed for ignorance or blundering, no excuse is granted the worker who is not equipped for his task. Some sort of power must be added to the teacher if the pupil is to go out with a knowledge deep enough, sure enough, tried enough to function in daily living.

It is for this emergency that *THE BOOK OF KNOWLEDGE* is offered. Teach your pupils its use and you have opened wide the door to an enriched self-education. Teach him the right use of this set of books and you have given him the means to serve his highest educational ambitions.

The teacher strives to help his pupil gain knowledge and make the right use of it independently; to make the unknowing child conscious of his plan and purpose in coming to school; to make him his own teacher. Once the child gets the idea the teacher's burden is lifted and his task becomes a joy. The unwilling child becomes the eager searching child whom it is a delight to serve.

We of the schools do too little to stimulate this hunger for knowledge. The school is usually set toward the administration problems rather than the child's full growth. The Course of Study would seem to be a secret between the superintendents and the teachers. The child's task is hidden from him and his lessons are like so many attacks from ambush.

The teacher gives and the child accepts. The lesson is the teacher's. The correction and criticism are made by the teacher. The tests are the teacher's and the ratings are his. Have you not heard the teacher say, "My questions," "My lessons," "My marks"? Any process that leaves the eager, constructive mind of the child out of consideration cannot be called education. Education lies in personal experiences, personal responsibility for work and conduct.

Turn things about a little. Take the child into confidence about his education. Show him the Course of Study as it is set down here and explain that it is the fund of knowledge that every school child of his age and power can master. Show him how to follow it through step by step and how to enrich it by the related reading. Teach him how to test his own work, measure his own power; to take an impersonal and critical view of his knowledge. Allow him to put his creative instinct on a job and you have given him the best of gifts, the power of self-help.

If you can take this attitude toward teaching you will find your function has shifted from that of the task-master to that of the leader and guide. You will find yourself acting as an inspirational force rather than as the dull, compelling dictator. You will discover that there is much of the adventure in search of knowledge still open to you and you will go forward with your pupils.

Curiosity, the instinctive desire to know what is as yet unknown, drives men to search as long as they are alive. The divine hunger to learn what is beyond the horizon drives him to seek and find and so magnify his increase and magnify his power on earth. This he must do if he is to be true to himself. Each step forward, each discovery made, turns his days of drudgery to moments of delight.

For the searching pupil and teacher there is no better source book than these we offer you. *THE BOOK OF KNOWLEDGE* holds much of what you need. Use it and you will find yourself growing in intelligence and power. Teach your pupils to use it and you will find them coming to your classes with shining eyes and eager minds.

Direct work to the Course of Study. It is no longer considered good teaching to keep the plan of work from the pupil who is doing it. Teach him to look back to what he has accomplished, reread the stories, review the problems, retake the tests, so that he kneads his knowledge into his mind. The older our knowledge is the richer it becomes.

INTRODUCTION

Teach him to look ahead so that he works intelligently toward his goal day by day. Fear rides with him who travels an unknown road, and modern teachers dread the entrance of fear into the minds of their pupils. Let familiarity take the place of the mystery once associated with the term's work in the Course of Study and the children will work faster, work more intelligently, and with the high spirit that self-help and the serenity of sureness bring.

He who opens to the questioning mind of a child the knowledge that increases his powers and stimulates his creative instinct blazes a trail for a new, a nobler race.

Angela Paton





GRADED COURSES OF STUDY

TABLE OF CONTENTS

	PAGE		PAGE
GEOGRAPHY		Sixth Grade . . .	7810
Fourth Grade . . .	7735	Seventh Grade . . .	7810
Fifth Grade . . .	7740	Eighth Grade . . .	7811
Sixth Grade . . .	7752	Ninth Grade . . .	7811
Seventh Grade . . .	7762		
Eighth Grade . . .	7771	NATURE STUDY	
Summary . . .	7776	First Grade . . .	7813
HISTORY AND CIVICS		Second Grade . . .	7813
Fourth Grade . . .	7777	Third Grade . . .	7814
Fifth Grade . . .	7780	Fourth Grade . . .	7815
Sixth Grade . . .	7785	Fifth Grade . . .	7815
Seventh Grade . . .	7790	Sixth Grade . . .	7816
Eighth Grade . . .	7797		
Summary . . .	7806	SCIENCE	
LITERATURE		Seventh Grade . . .	7818
First Grade . . .	7807	Eighth Grade . . .	7830
Second Grade . . .	7807	Ninth Grade . . .	7840
Third Grade . . .	7808		
Fourth Grade . . .	7808	BIOLOGY	
Fifth Grade . . .	7809	Ninth Grade . . .	7854



GEOGRAPHY, 4TH GRADE

Average Age 9 to 10½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1. LOCAL OR HOME GEOGRAPHY.

(a) *Your home.*

Its location.

The materials of which it is made.

How it is built. Why?

(Climatic reasons)

How is it kept warm?

How is it furnished?

Associated facts

The directions from home and school. Topography (i.e. surface and land forms) of your home village or city and of your own state.

(b) *The food you eat.*

Its sources.

The farm, the country, a place where things are *grown* (pictures 18-6433, 10-3397, 1-115, 15-5276-77, 5279.)

How the food reaches your table.

(c) *The clothing you wear—your suit, your dress, your shoes.*

Tell their story.

(d) *The occupations and industries of the local environment.*

The city a place where things are *made*.

The interdependence of the city and country. One cannot exist without the other.

Of what materials are most city homes built? (8-3012, 9-3210-12, 18-6690.) Country homes? Tell why. (5-1658.) Tom lives in a big house in the country. Of what material is his home constructed? (16-5985-96; pictures, 18-6428-29.) Name two places where it might have been grown. How was it brought to its present location? In what directions did it travel? How did it make the journey? By rail? By boat? Johnny lives in an apartment in a large city. (4-1215; pictures, 17-6209, 6219, 18-6688.) Of what material is his home built? Tell from where it came.

For breakfast, Johnny had oranges (6-2057), bread (1-371-84, 7-2423-25), butter and milk (7-2323-26). Where were these things grown or made and how did they reach Johnny? What food does the Eskimo child eat? (7-2563-66.) The Indian boy? (1-161, 14-5165, 12-4515.) How is this food obtained and brought to them? Do more or fewer people help to feed Johnny than help to feed the Indian and Eskimo? Why?

Johnny wears a stout woolen suit. Who first wore it? Not Johnny. (15-5575-88.) Who took the wool away from its first wearer? Tell the story of the journey of Johnny's suit from its first wearer to him. Johnny's shoes are heavy leather. (5-1549-58.) Who first wore them? How did they reach Johnny? (18-6440-55.)

In what ways do the people whom you know earn their livings? What are the chief occupations and industries of the sections where you live? How does the trapper earn his living? (12-4341-42.) Where does he work? (Use map.) How does he dispose of what he gathers? Who finally uses it? What does the fisherman do to earn his living? (11-4050-63.) Where does he work? What things does the city send to the fisherman, the lumberman, the farmer? How are these things sent? Who handles them? (2-410.)

COURSE OF STUDY

COURSE OF STUDY

2. HOMES OF OTHER CHILDREN OF OUR OWN LAND.

Types

Eskimo child's home. (7-2564-66; picture, 8-2981.)

Mexican child's home. (5-1656.)

Canadian trapper's home. (Pictures, 12-4338-40.)

Indian child's home. (1-161, 162; 5-1658; picture, 16-5835.)

Fisherman's home.

Stockman's home. (15-5276-77.)

Lumberman's home. (16-5985-96.)

- (a) How each one of these is built and why? (Climate—Topography.)
- (b) The food and clothing of each. How obtained.
- (c) Occupations.
- (d) The animals, trees and flowers that grow about them.

Words of which you should be able to give the meanings

1. occupation
2. industry
3. product
4. export
5. import
6. resource
7. climate
8. customs
9. government
10. population

3. HOMES OF CHILDREN OF OTHER LANDS.

(a) *South America.*

Manuel in Brazil. (19-7042-48.)

Homes in Temperate Zone

Many kinds of industries.

Many kinds of homes.

Many kinds of food, animals.

Many kinds of things grown.

(b) *Europe.*

Swiss child. (16-5997-6009.)

French child. (11-3812-28.)

English child. (7-2292-2304.)

QUESTIONS

When the sun does not make it warm enough, how can we get heat? (3-785-802.) What men produce the heat givers? Where do they work and live? How do they send the heat givers to us? How does the Eskimo heat his home? What is the Eskimo's home called? (7-2564.) Which child lived in a Wigwam? How was the Wigwam heated? Who lived in a bark tepee? Where? (1-160-65; picture, 16-5835.) Why do I say *lived*, not *lives*? Who lives in a pueblo? (9-3028-30; pictures, 19-7237.) Which child lives in the country to the south of the United States? What things may his father do to gain a living? (19-7134-36.) You have a map of North America which shows all of the countries. Take your map and see how many towns and cities you find in this country. Make a *traced* map of Mexico. Cut out Mexico. Place a sheet of paper with Mexico cut out on the map of North America, so that the opening will cover the eastern part of the U. S. Count the towns and cities to be found within this territory in the U. S. Compare the number with that found in Mexico. How would you expect the people of Mexico to earn their livings? Repeat this exercise with Canada. (1-110-12.) What occupations do you find in the countries with many cities? in countries with few cities? What is meant by the "chief industry" of a place? Who sends us her- ring? salmon? How are these caught? How shipped to us? How are they kept from spoiling? (11-4050-61, 1-113.) Who sends us beef? (9-3207.) Where does he live? (15-5276-77; 18-6435.) What other things does he send to us? What must he buy from cities?

Describe a home in the zone where the sun shines strongest. (Picture, 8-2830-31.) What plants and animals do we find there? (19-7142; pictures, 8-2695-98, 2827.) Manuel lives in South America. Map. (19-6856.) What great mountains rise to the *west* of his home? What things are grown near Manuel's home? (19-6975-82.) What child lives near the Alps Mountains? (16-5997-6009.) What child has Paris for the capital of his country? (11-3812-28.) What children live in the British Isles (7-2292-2304.) What is the chief city of each of these countries? What child lives in the valley of the Rhine? (12-4160-80.) What things are raised in his country? Which of

COURSE OF STUDY

German child. (12-4160-80.)
 Spanish child. (14-5039-53.)
 Italian child. (13-4564-76.)

- (c) *Asia.*
 Chinese child. (2-421-36.)
 Japanese child. (2-560-74.)
- (d) *Australia.* (7-2462-73.)
 Sheepherder's child.
- (e) *Homes in Hot Lands (Torrid Zone).*
 African negro child. (18-6802-14.)
- (f) *Island children.*
 West Indies. (19-7096-7104.)
 Iceland. (15-5298.)
 Philippines. (10-3588-91.)
 British Isles. (7-2292-2304.)

4. PHYSICAL GEOGRAPHY

Motions of the earth. (1-17-24,
 235-39.)
 The earth takes a journey every day.
 Every year, it takes a greater jour-
 ney around the sun.
 What causes change of seasons?
 (8-2791-94.)
 The amount of sun influences man's
 manner of living. (8-2663-68.)
 Lands under the direct rays.
 The equator.
 Heat Belts—Zones.
 The great land divisions. (1-42-48.)
 Bordering waters.
 Chief mountain ranges. (7-2537-42.)
 Chief rivers.
 Bays, Gulfs.

5. POLITICAL GEOGRAPHY

The chief countries in each conti-
 nent, largest cities.
 Review by going back over children's
 homes.

QUESTIONS

these countries you have studied have kings?
 Which are republics? What things does
 Spain send us? (14-5039-53.) Italy? (13-
 4564-76.) In what continent is China?
 (2-421-36.) How do the Chinese earn
 their livings? Name two great rivers in
 China. What is a junk? What things do
 we get from China? What things does
 China get from us? What are the chief
 industries of Japan? (2-560-574.) What
 beautiful things are made in China and
 Japan? If a ship from an African seaport
 sailed into San Francisco what cargo would
 you expect it to carry? (18-6802-14.) What
 cargo might it carry back? What is the
 chief export of Australia? (7-2462-73.) In
 what continent is there the least manufac-
 turing?

Children illustrate motions of the earth by
 drawings, by dramatizations and games.
 What are zones? In which one do you live?
 Which are the frozen zones? In which zone
 do the dwellers have the easiest existence?
 (8-2663-68.) Why? Which is the best zone
 in which to live? Why? In which direction
 does your shadow point at *noon day*? Do
 all places within the same zone have the
 same climate? If you lived *south* of the
 equator in what direction would your
 shadow point at noon day? Describe a
 home in the zone which has the least sun-
 shine. (7-2564-66, 8-2981.) Tell who
 built it and how. What people live there?
 How are they dressed? What is their food?

Here is a list of the continents and a list
 of countries. Arrange the countries so that
 they will be opposite the continents in which
 they belong.

Brazil	Asia
Canada	Europe
Japan	South America
France	North America
India	South America
Chile	North America
U. S.	Asia
China	Europe
Germany	North America
Mexico	Africa
Egypt	Asia

THINGS TO DO (GEOGRAPHY, 4TH GRADE)

1. Make a map of your own locality. If you live in the city, make the map of your own block. Show your home. Remember there is something you must learn that is called *scale*. What does the word mean in connection with maps? If you live in the country, make the map of your own section. Show railroads, roads, streams, high and low land, and any important buildings.
2. Get a large blank book. Keep it as a scrapbook in connection with your work in geography. As you study a topic collect all the pictures you can that refer to it and paste them into your book. Be sure to label each picture. Do not scatter them. Put all pictures on a topic together.
3. Make product maps. Make an outline map of the country you are studying. Try to get a sample of each important product. Paste or fasten it in its correct location.
4. If there is a market anywhere near you, visit it. Try to learn from what place each thing there came.
5. Study the freight cars on the track. Write down their home labels. Go home and look up their starting point on your map. Try to trace their journeys.
6. Visit any important manufacturing plant in your vicinity. Learn where the materials used there are obtained. Where is the finished product sent?
7. Visit your butcher, grocer and dairyman. Find out the journey made by their goods. Remember labels will teach you much geography.
8. Go out into the street or road after a rain. Find a river system, an island, a bay. Use your sand pile. Make a cape, a gulf, a mountain range, a peninsula.

TESTS (GEOGRAPHY, 4TH GRADE)

COMPLETION

Can you pass this test? You should be able to answer at least three-fourths of the questions correctly. Fill in these blank spaces with the correct answers.

1. Eskimos live in the Zone.
2. Their clothing is made of and
3. The place where the sun's rays fall most directly is called the
4. and are valuable heat givers.
5. A bay in the northern part of the continent on which we live is called
6. Fishing is chiefly carried on along
7. Most lumber is grown in the and shipped to the
8. Wool is gathered from
9. The longest river in South America is
10. The Appalachian Mountains are in the part of

FALSE-TRUE

If you think any statement made here is *true*, place a plus (+) after it. If you think the statement is *false*, place a minus (—). Example—"The United States is in the Torrid Zone." This is not true, but false, so we place a — next to it. If the statement had read,

TESTS

"The United States is in the North Temperate Zone," it would have been true and should have received a +.

1. The Eskimo makes great use of reindeer.
2. Much coal is mined in New York State.
3. Canada is a great grain-raising country.
4. "North" on the map is always high land because it is "up."
5. Rivers always flow south.
6. The sun travels around the earth.
7. Much corn is raised in the central part of the United States.
8. Bears, wolves and panthers are found in the North Temperate Zone.
9. Zones are heat belts.
10. There are no countries in North America that touch the North Frigid Zone.

(NOTE. If you wish to be counted right, you must do *exactly* what the question tells you to do.)

JUDGMENT

1. Check any of these names which you think belong to *gulfs*: Mexico, Hudson, St. Lawrence, Biscay, Bengal.
2. Arrange these names in a list. Tell whether each one is a *bay*, *river*, *mountain*, or *city*. Next to your answer place the *country* where it is found: Amazon, Himalaya, Alps, St. Lawrence, Chile, Philadelphia, Nile, Tokio, Plata, Bengal.
3. On Johnny's dinner table one day in December are beef, bread, coffee, raisins, oranges. Tell the country or state from which each one came.
4. Wheat is an important crop in France, England, Canada, Brazil, the United States. Cross out all words necessary in order to make this statement correct.
5. An export is something (a) sent *out* of a country (b) brought *into* a country. Cross out all words necessary in order to make this statement correct.
6. If I go from New York to London, I must cross the Pacific, Gulf of Mexico, Atlantic, Gulf of St. Lawrence. Cross out all words necessary in order to make this statement correct.
7. Grazing is an occupation, a product, an export, an import. Cross out all words necessary in order to make this statement correct.
8. Catching seals is an important industry in Mexico, Great Britain, France, Canada, Alaska. Cross out all words necessary in order to make this statement correct.
9. Canada is (a) more thickly settled than the United States (b) less thickly settled than the U. S. (c) has about the same population as the United States. Cross out all words necessary in order to make this statement correct.
10. China carries on (a) much manufacturing (b) very little manufacturing (c) practically no manufacturing. Cross out all words necessary in order to make this statement correct.

GEOGRAPHY, 5TH GRADE

Average Age, 10 to 11½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. THE WORKERS OF OUR OWN CONTINENT.

The different things they prepare, grow and make. How they send their products across the seas. Review the homes on the continent of North America. (See 4th grade.) We see that people live in many different kinds of homes on our own continent. What things make their ways of living, homes and occupations so different? Why does the Eskimo live in an igloo and catch seals for a living while our Canadian cousins raise wheat and cut lumber? Climate, topography, natural resources.

2. TYPE OF WORKERS IN NORTH AMERICA.

- (a) The Farmer. (Kinds of farmers.)
- (b) The Shipper. (Ways of shipping, transportation.)
- (c) The Manufacturer. (*What he makes.*)
- (d) The Merchant. (*What he sells. How he receives it.*)
- (e) The Builder. (*How he gets his materials. From where?*)
- (f) The Laborer.

Those who work on

Plantations. (8-2782-84;

13-4520-25.)

General Farms. (10-3404-08;

15-5274-84.)

Ranches. (15-5276-77;

18-6435.)

Market Gardens. (7-2613-24;

10-3406.)

Fruit Farms. (6-2056-68; map,

19-7247.)

Dairy Farms. (1-371-84.)

Haciendas or Fazendas.

(19-7048. See Index.)

What is raised on each of these?

Trace the routes taken by the products of North America to the different countries of the world. (1-44-45, 48.) What do those countries send us in return?

QUESTIONS

What is a continent? Which is the largest continent? (Map, 1-44-45.) Which is the smallest? Where does North America rank in size? What do we mean by the Western Hemisphere? Name the countries of North America. (Map, 1-152; 19-7133.) Give a type of home found in each. Make an outline map of North America and show on it the localities where farming is the chief occupation. (1-154.) How many kinds of farmers can you name? What is raised on plantations? (8-2782-84.) What is the most important crop in Canada? (1-112-114.) In California? (6-2057-58.) In what section do we find the most general farming? (1-154.) What type of farm do we find in the vicinity of large cities? (10-3406.) Name all the means of transportation in North America you can think of. (2-408-20; 13-4787; 1-166-84.) Give reasons for shipment of goods by water; by rail. How would you ship lumber? (16-5985-96.) Fruit? Meat? (2-410.) Why is it possible for us to have on our tables food from all parts of the continent? Why was this not possible in Washington's time? (5-1698-1700; 5-1610-18.) What are the chief manufactures of your own state?

COURSE OF STUDY

QUESTIONS

3. NORTH AMERICA.

(a) Surface.

Let us take an imaginary journey. We will fly over North America in an airplane. (1-152-54.) From what we learn we will make a sand table map showing the surface of North America. This is called a *physical* map (i.e. one which shows natural features, topography). What is a political map? The surface of our country will teach us many things concerning occupations and products.

Natural divisions

1. Atlantic Coastal Plain.
2. Appalachian Highland.
3. Great Central Plain.
4. Rocky Mountain Highland.
5. Great Plateau.
6. Pacific Coast.

What occupations would you expect to find in each?

(b) Drainage.

The great river systems

Mississippi (16-5653-60), St. Lawrence (6-1955-63), Yukon, Hudson. (See Index.) Sections drained by each.

Rivers

Ohio, Missouri, Delaware, Arkansas, Colorado, Columbia, Red (see entry in Index under each name), Rio Grande (19-7131, 7133). (See Index.) Indicate the dry-desert areas. (9-3025-32.)

Uses of rivers

1. Irrigation. (7-2543-55.)
2. Transportation. (13-4881-88; 17-6040, 6044.)
3. Turn mill wheels to furnish power. (15-5428-38.)
4. Carry down and distribute fertile soil. (7-2537-38.)

(c) Climates of North America.

(Review zones.)

(d) Surrounding waters.

(e) Resources and products by

1. Surface.
2. Countries.

In which hemisphere is North America? If we sail straight westward, to what continent will we come? (1-44-45.) If we sail southwest? If we sail eastward? What continent lies south of our own? What great mountain systems do we find in North America? (1-152-54.) Which ones go with us all the way on our journey from Alaska to Central America? What minerals are mined in those mountains? What is a plateau? Make one in sand. Point to two on a map of North America. What occupations do we find on the Atlantic Coastal Plain? Why are these occupations carried on where they are? Why not some others? What great crops do we find on the Great Central Plain? Name five fruits we use the year round and tell where each is grown. (6-2056-68.)

Name four uses of rivers. What kinds of rivers furnish power? (15-5428-38.) Name two such rivers. Which rivers are useful for transportation? (17-6040, 6044.) Do we use rivers for that purpose as much as we did seventy-five years ago? (13-4881-88.) Why not? Which large river systems drain North America? (7-2537-38.) Where does the water in these rivers come from? (6-2249.)

What is climate? (8-2663-68.) Within what zones does North America lie? What countries in North America lie within the North Temperate Zone? Do all the places within the North Temperate Zone have the same climate? What part of the United States lies partly within the North Temperate and the North Frigid Zones?

COURSE OF STUDY

COURSE OF STUDY

4. ALASKA. (10-3583-84; 16-5789-95.) Belongs to what country? Find out when and from whom Alaska was purchased. Do you think it was a good bargain? Give reasons for your answer. Of what value is Alaska to the United States? What value is the United States to Alaska? What resources in Alaska's waters? Find out what factors hinder the commerce of Alaska. Alaska's advantages. Her disadvantages. Her resources. Let us take a trip to Alaska. Find out from the railroad or steamship agent near your home what he considers the best way to reach Alaska and to what cities in Alaska you may go. What would be the best seasons of the year to make your journey? Why? Trace our routes on the map. Gather all the material you can for your geography note book.

Special reports

Gold mining. (19-6843; picture, 6-1921.) Salmon fishing and canning. (11-4053-61; 1-113.) Seal hunting. (3-997-1004.) The mountains of Alaska. Cities of Alaska. A dog team. (Pictures, 12-4339; 7-2494.) Transportation.

5. CANADA. (1-104-16; 7-2557-62.) Is Canada larger than your own country? If so, how much larger? Look at the map. Which parts of Canada are thinly settled? Tell why. Which parts are more thickly settled? Repeat the exercise for comparison that you did in 4th grade U. S. and Canada. Make a relief map of Canada with modeling clay. What highlands and mountain systems do you find? Indicate the large rivers. What useful work do you think is done by the rivers of Canada? Show the timber line. Color the regions where wheat is grown. Climate of Canada. Review your reasons for settlement and look again at your map of North America. What climate do you think is found in the various sections of Canada? Look at your physical map. What resources would you expect to find in Canada? What homes did we visit

QUESTIONS

ALASKA. (10-3583-84; 16-5789-95.) What natural resources made Alaska a good bargain for the United States? Alaska's climate an advantage, a disadvantage, or both? What is the most important city of Alaska? What products does Alaska send to the United States? What do we send her in return?

CANADA. (1-104-16; 7-2557-62.) With what large country in North America has the United States the longest friendship? How many forts stand on the northern border-line of the United States? What do we mean by *natural boundaries*? What natural boundary between a part of the United States and Canada? What do we mean by the timber line? Where does it lie in Canada? (7-2560.) How far north in Canada may wheat be grown? Why are Edmonton and Winnipeg so important although they do not rank high in population? Describe the fisheries along the different coasts. (7-2496-2509.) Locate the most thickly settled part of Canada and give its extent. Why is this so? Why has so much of Canada, which was discovered at the same time as the United States, been so thinly settled, while our own country has been so well populated? Why is Vancouver warmer than Augusta, Me., although it is farther north? What things does Canada export? What must she import? Compare Canada and the United

COURSE OF STUDY

there in the fourth grade? Chief cities of Canada: Montreal, Quebec, Toronto, Ottawa (capital). (See Index under name of each city.) Government of Canada. Transportation. (4-1490-93.) How many railroad systems do we find in Canada? What loads do we expect to find on the freight cars? Water transportation is important in Canada.

- (a) Rivers.
- (b) The lake routes to the sea. (6-1955-62.)
- (c) Newfoundland—its fishing.

Special reports

Canadian fisheries, wheat farming, lumbering. A winter trip out of Winnipeg. (7-2557-62.) Royal Canadian Mounted Police. (16-5831-38.) Hudson's Bay Company. (12-4337-42.)

Provinces

Alberta.
British Columbia.
Manitoba.
New Brunswick.
Nova Scotia.
Ontario.
Prince Edward Island.
Quebec.
Saskatchewan.
(See entry in Index under each name.)

QUESTIONS

States as to (1) size, (2) surface, (3) climate, (4) amount of wheat grown, (5) manufacturing, (6) number and lengths of railroads, (7) minerals. What good transportation route to the sea has Canada? (6-1955-62.) Why is Newfoundland always discussed separately from Canada?

6. NEIGHBORS TO THE SOUTH. (19-7131-42.)

To the City of Mexico by rail. Could we have gone by any other route? Trace it. Do you notice any difference between the houses and those of your homeland? The City of Mexico seems to rest in the centre of a large bowl. Find out how the city is drained. Notice the beautiful mountains that surround it. Mexico is able to raise many different kinds of farm products. Find out why. We notice many mines and large wells. What resources do they indicate? Where are the cow plains of Mexico? Look at the relief map. (Make one as you did for Canada.) Would you like to live in Vera Cruz? Give your reasons.

Special reports

Government of Mexico. Railroads. The Aztecs, Yucatan and

MEXICO. (19-7131-42.) How is the City of Mexico drained? Draw an outline map of Mexico and fill in on it the surface features. What are the two routes by which the City of Mexico may be reached? Which would you prefer? Why? Describe the climate of Mexico. What things about the vegetation tell you that you are in a hot country? What is meant by the variety of Mexico's climate? What volcanic mountain can be seen from the City of Mexico? (Picture, 19-7131.) What is a volcanic mountain? (7-2313-14; 8-2873-74.) Mexico has attracted much foreign capital. What resources are responsible for this? Make a product map of Mexico. How and where does Mexico ship her products? What is sisal? (8-2785, 2788.) What things must Mexico import? (11-3791-92.) Why is Tampico important? Compare the number of railroads in Mexico with the number in your own country. Who were the Aztecs? What language is chiefly spoken in Mexico?

COURSE OF STUDY

COURSE OF STUDY

Sisal. (8-2785, 2788.) Transportation in Mexico. Schools in Mexico. As we go toward Central America the temperature climbs higher and higher. Why? How would you like to live down in this part of your continent?

7. CENTRAL AMERICA. (19-7142.)

What time of year do visitors from the North come down here? Suppose you were a planter in Central America. To what part of Central America could your family go during the hottest months? (19-7142.) Make a relief map as you did for Canada and Mexico. (19-7133.) Notice the rivers very carefully. You have learned something of the climate. Be able to describe it fully. Cities of Central America:

Panama.
Salvador.
Costa Rica.
Honduras.
Guatemala.
Nicaragua.

(See entry in Index under each name.)

Products.

Transportation in Central America.

Special Reports

Earthquakes. A coffee plantation. (6-2178-79.) People of Central America. United Fruit Company.

Cuba. (19-7102.)

(a) Location—Climate.

(b) Government. (10-3590, 3592.)

(c) Industries and products.

8. SOUTH AMERICA. (19-6974-83, 7033-50; map, 19-6856.)

It is January and I am standing on a pier in New York City, watching a great white boat making ready to sail. People are talking gaily of soon being able to discard heavy clothing. The boat is a United Fruit liner and it is going to South America. Through what waters will it pass to reach the South American ports on the western coast? (1-44.)

(a) Climate.

Comparison with North America. Zones of South America. Vegetation.

QUESTIONS

Compare the school system of Mexico with that of the United States. Tell something of the troubles undergone by the government of Mexico.

CENTRAL AMERICA. (19-7142.) Describe the climate of Central America. Of what countries is Central America composed? (Map, 19-7133.) What are the chief methods of transportation here? (Map, 1-48.) What are the most important products of Central America? What company imports much fruit from this part of the continent to the United States? What islands are near Central America? (19-7097.) To whom do they belong? Name their chief products. What island is one of the greatest sugar producing regions of the world? Cane or beet sugar? (10-3415, 3416, 3418; 19-7247.) Compare the school system and government of Central America with that of the United States. (19-7142; 5-1787-93.)

SOUTH AMERICA. Why do people speak of the "two Americas"? Why do they speak of the Western Hemisphere as the "New World"? (1-89, 242; 8-2980.) What line crosses the northern part of South America? (19-6978.) What connection is there between this line and South America's climate? (8-2666, 2794.) Which parts have a heavy rainfall? What are pampas? Llanos? (6-2171.) Why is the upper valley of the Amazon *not* settled? What parts of South America are thickly settled? Why do you think the greatest number settled where they did? Indicate railroads and rivers on your map. Which coast of South America has the

COURSE OF STUDY

QUESTIONS

What crops will do well in South America? Rainfall.

- (b) Surface. (19-6857-63.)
Compare with North America. Make a relief map. (Map, 19-6856.)
What occupations would you expect to find on those broad plains? What minerals in the Andes? (19-6976, 6978, 6982, 7038.)
- (c) Rivers.
A trip up the Amazon. (19-6863.)
- (d) People and occupations.
- (e) Products—sent to North America?
What does North America send her southern sister?
The Story of Rubber. (4-1405-14.)
The Story of Coffee. (6-2177-84.)
The Story of Cattle. (19-7034-35.)
- (f) Cities.
- (g) Government. (19-6975, 7033.)
Study Brazil (19-7040-46), Argentina (19-7036-38) and Chile (19-7036-40) separately.

Things to Do

1. Write to the United Fruit Line for literature.
2. Make a scrap book containing all the pictures you can find concerning South America.
3. Choose one of the advertisements of South American cruises. Make believe that you are taking it. Write an account of your travels, telling what you see and learn.

Words you should be able to spell

- Llanos. (6-2171.)
- Pampas. (6-2171.)
- Tropic of Capricorn. (See Index.)
- Isthmus. (See Index.)
- Nitrate. (See Index.)
- Quinine. (8-2909-10.)

9. THE UNITED STATES IN DETAIL.
(8-2669-80; 9-3207-20; 10-3397-3400.)

Always begin this study with your own group of states.

- (a) The Northeastern States. (Map, 10-3400, 3401-08; 11-3773-82; 12-4145-52.)
1. General Surface features, climate, rainfall.

better harbors? (Map, 19-6856.) What advantages does its climate give South America? What disadvantages? (9-3101.) South America is rich in products. Indicate at least *six* on a product map. (19-7247.) Describe the vegetation you would see if you took a trip up the Amazon. What different peoples live in South America? What language is chiefly spoken? (19-6975-83; 7033-47.) What is the prevailing type of government?

Special topics

- Rio de Janeiro. (19-7042-46.)
- Buenos Aires. (19-7033-36.)
- Simon Bolivar. (19-6975-76.)
- A scene on the Pampas. (19-7034-36.)
- The cargo a ship might carry from Buenos Aires to New York—the return cargo.
- The Panama Canal. (1-360-67; 10-3594-96.)
- The Tacna-Arica Dispute. (19-6980-82.)

What natural resources are possessed by the Northeastern group of states? Why do we find so much manufacturing in New England? What type of farming do we find in New York State? (10-3404-06.) Why?

COURSE OF STUDY

COURSE OF STUDY

2. Natural Resources. (Do not forget to include rivers and harbors.)
3. Occupations and Industries.
4. Products.
5. Populations. Kinds of workers. Variety of work.
6. Manufacturing—What? Where?
7. Coal Mining—Why are manufacturing and coal mining connected?
8. Dairying.
9. Fishing.
10. Transportation.
11. Cities. Reasons for their location.

As a type state study your own if you live in this group, if not take New York as type. Cover all the points mentioned above.

Problem

What natural advantages made New York the largest city in this section? (12-4145-47; 13-4886-88.)

Special assignments

- The steel industry. (6-1935-54.) Waterways—including canal locks. Make drawings and models showing how these operate. (13-4881-88, 4785-93.) Manufacturing in New England. Dairying in New York. Coal Mining. (3-785-802.)
1. Bituminous.
 2. Anthracite.

- (b) North Central States. (15-5273-84; 17-6037-48; 19-7105-24.)

Cover 1, 2, 3, 4 and 5 as above.

6. Manufacturing. What are the manufacturing cities? How do they obtain coal? Is there coal in this section? What kind? Where? Trace the journey coal must make to reach them. The automobile industry. Trace the journey of the raw materials needed in the automobile industry.
7. Mining—iron, copper. Where? How?
8. Agriculture—chief crops. Study climate and rainfall. What connection is there be-

QUESTIONS

What great natural advantages has New York? Why has it grown so much more rapidly than Philadelphia? (12-4145-47; 13-4886-88.) Illustrate your answer by using a map of New York State. Why is Pittsburgh an ideal steel centre? (11-3773, 3777; 17-6037-38.) What kinds of coal are mined in this section? (11-3773.) What uses are made of each kind? For what are Boston (17-6177), Philadelphia (18-6826) and Buffalo (13-4888) famous?

How may a cargo of wheat be shipped from Chicago to the Atlantic coast by water? (13-4881-88.) What natural resources must a city possess in order to become a great manufacturing centre? (11-3773-82.) Name at least three. Locate the corn belt. (8-2678.) What states lead in corn raising? (15-5280-82.) What climate is favorable to corn growing? In what form does corn reach you? (1-372; 5-1856; 7-2424.) Tell the story of the ham on your breakfast table. (5-1717-25; 7-2512-13; 9-3207.) Name at least three products obtained from hogs. (7-2513.) Name at least three factors that make Chicago the largest city of its section. (19-7105-24.) List the canned meats in your grocer's window. Trace the progress of each one from

COURSE OF STUDY

tween the corn crop and hog-raising? (15-5282.)

Why is Chicago a meat-packing centre? (9-3209.)

9. Transportation.

(a) Rivers.

(b) Lakes.

(c) Railroads.

Special assignments

A visit to a meat-packing plant.

(7-2512-13.) The stock yards.

(9-3207-09; 17-6044.) Story

of a steamer and its cargo on the

Great Lakes. A Kansas Wheat

Field. (15-5278.) The Steel

Mills at Gary. (17-6038.)

Copper Mining near Lake Su-

perior. (17-6038.) The Mak-

ing of an Automobile. (19-

7015-32.) Up-to-date farming

machinery. (19-7209-11.)

(c) The Southern States. (13-4517-28; 14-4889-4900.)

What railroads carry us to the South?

From New York City? From Chi-

cago? From San Francisco? To

what places in the South do north-

erners go in winter time? Find these

on the map. (10-3400.) *Climate*

and *surface* of the Southern States.

Drainage. The Mississippi (16-

5653-60); deltas (7-2537).

1. Products. What crops do we

find in the South that are new

to us? Why was cotton called

king? Look up the story. What

invention helped to make cot-

ton king? (6-1912; 19-7205.)

Make a map showing cotton

production. (8-2678, 2782; 9-

3214; 14-5167-76.) What other

new crops do we see? Where is

the rice section? (5-1854-55.)

The sugar? Does the South

raise enough sugar for the

United States? What fruits do

we get from the South? (8-

2680; 6-2064.) How are they

shipped to us?

2. What race makes up a great

part of the population of the

South? What part has it

taken in developing the South?

Read the story of the Civil War.

(7-2427-44.)

QUESTIONS

its beginning to the present. Name four products obtained from cattle. (4-1259-64.)

What is a silo? (7-2413.) Why is it useful? What resources are necessary to the steel industry? (6-1935-54.)

Write a paragraph on Gary and Pittsburgh. Name the different kinds of coal of which you have studied. (3-785-802.)

Where are they found? (11-3773; 13-4526; 17-6040.)

What differences in their uses?

Make an outline drawing of the Southern States. (10-3400; 13-4517-28; 14-4889-4900.)

Fill in the *chief cities*, *surface fea-*

tures and *products*. What advantages has the South over the North in agriculture?

What kinds of lumber does the South send to us? What are levees? (16-5654-60.)

Where do we find them? Name four crops of the South not grown in the North.

COURSE OF STUDY

COURSE OF STUDY

The New South.
Agriculture.
Manufacturing.
The Lumber industry.
Cities.

- (a) Savannah. (See Index.)
- (b) New Orleans. (See Index.)
- (c) Richmond.
- (d) Mobile.
- (e) Tampa.

Problem

Why did the South develop as an agricultural section instead of as a manufacturing one? (Before the Civil War.) Why is it *now* developing its industrial resources? (14-4889.) Transportation in the South. The rivers—the railroads. Which is now used more?

Special topics

The hill dwellers of the South. The cotton-gin. Life on a small farm in the South. Steamboating on the Mississippi. (16-5633-60.) Sugar raising (cane). (10-3415-24.) Sugar raising (beet). The story of slavery in the United States. (2-546; 5-1627; 6-1912, 1914.)

- (d) The Western States. (18-6425-36; 19-6841-50.)
Make an outline map of the United States. (10-3400.) Indicate the section covered by the Western States. (18-6425-36; 19-6841-50.) Put in railroad routes by which we might reach the West, from New York, from New Orleans, from Montreal. Make a relief map of the Western group. Indicate rivers. Why are they so important to the West? Read about irrigation. (7-2543-55.) How is it carried on?

1. Climate—Rainfall. What great resources and advantages has the West? What difficulties has it to overcome in some sections? The grazing lands. (8-2808, 2811.) What flocks and herds do we see on them?
2. Mineral resources. What are they? Name a great mining city.
3. Other important products.

QUESTIONS

Describe the chief occupations of Texas. Why is drainage important to New Orleans? (16-5660.) With what city in the South do we associate cotton? Compare a plantation in Virginia with one in Louisiana. Discuss crops, methods of farming. Compare a farm in New York with one in Virginia (eastern part). What city is called the Pittsburgh of the South? Why? (Birmingham, Ala., 13-4526.) What are naval stores? (14-4892.) Why do we no longer get them in large quantities from the Carolinas? Compare crops of sixty years ago in the South with those of to-day.

Western States. (18-6425-36; 19-6841-50.) Name 3 mountain ranges in the western part of our country. What fertile valley do we find in California? Name some products raised there. What is the Continental Divide? Where is it? On what railroads do we cross it? Why is reforestation a serious problem? (8-2805.) Describe a journey from Chicago to San Francisco, making a stop over at the Grand Canyon. (7-2281-85.) Make a map of your route, showing any changes you must make. Write up a diary describing the places, scenery, people, occupations you see on the way. (Get R.R. folders for this work.) What is irrigation? Describe an irrigated farm. Why is irrigation an important thing to the Western States? (7-2544-46.) Why is the Great American Desert disappearing? How? (9-3025.) What is a "dry farmer"? (18-6432.) What is alfalfa? (7-2412; 15-5279.) Sorghum? (10-3420.) Where are they most grown? Why? Describe the fruits grown in California. (6-2056-64; 8-2680; map, 19-7247.) In Oregon? Compare the

COURSE OF STUDY

Lumber. Locate chief forests. (8-2803-12; 16-5985-96.) Where are the big trees? (12-4245-60.)
 Salmon (15-5636)—Portland.
 Fruit—California and Oregon. (6-2056-64.)
 4. The Southwest. Grand Canyon of the Colorado.
 5. National Parks of the West. (7-2281-91.)
 6. Cities.
 San Francisco.
 Salt Lake City.
 Portland.
 Los Angeles.
 Denver.

(See entry in Index under name of each city.)

7. Transportation.

Special Topics

Discovery of gold — "Forty-niners." (6-1922; 18-6430; 19-6848.) The Pony Express. (18-6432.) Building of the Union Pacific R.R. (18-6432.) The Spanish Missions. (18-6826, 6829.) "El Camino Real." Settlement of Utah. (18-6430.) Annexation of Texas and of California. (6-1916-22.) Indians of the Northwest. (1-161-65; 19-7235-44.) The Buffalo. (1-159; 4-1263-65.) Yellowstone Park. (2-729-33.)

QUESTIONS

population of Arizona with that of New York. How can you explain this difference? By what routes and means is fruit shipped from California to New York City? Which fruits are more perishable? How are these handled? (2-535; 5-1607.) Great numbers of cattle are raised in the West. (4-1259-64.) Trace the story of their journey to you. In what forms do they come to you? (7-2512-13; 9-3207.) Describe a gold mine. (7-2588; 10-3584; 18-6430; 19-6843.) Do you know more than one way of mining gold? What are they?

THINGS TO DO (GEOGRAPHY, 5TH GRADE)

1. Keep a geography scrap book as you did in the 4th grade.
2. Fill in pictures, outline maps, and accounts of each topic which you study.
3. Write to the steamship and railroad companies for circulars and material. Many of the great manufacturing concerns will send you advertising material you can use.
4. Make a map showing the location and amount of the corn crops of the U. S. Wheat crops of the U. S. (distinguish between winter and spring wheat). Cattle production of the U. S. Hog production of the U. S.
5. Make a graph showing the amount of each of these crops raised by the U. S. and countries of the British Empire and South America.
6. Words you should know: agriculture, industrial, productive, indispensable, essential, irrigation.
7. Make a careful study of your *own* state. Its (1) Location; (2) Surface; (3) Climate; (4) Resources or (5) Advantages; (6) Handicaps; (7) Products and occupations; (8) Cities; (9) Transportation.

TESTS (GEOGRAPHY, 5TH GRADE)

Check what you have learned. Can you pass this examination? You should be able to answer three-fourths of the questions correctly.

FALSE-TRUE

If you think the statement is correct, mark it with a plus (+).

If you think the statement is false, mark it with a minus (—).

1. The United States raises enough of all crops to supply its population.
2. The tobacco crop exhausts the land rapidly.
3. There is much dairying in the Northeastern States.
4. Very little manufacturing is now carried on in the South.
5. The shipper is not an essential worker.
6. New York City owes much of its growth to the Mohawk Valley.
7. Short, swift rivers are good for furnishing water power.
8. The llanos is a long-haired mountain sheep.
9. The western coast of North America has many good harbors.
10. The United States imports sugar from Cuba.

COMPLETION

Fill in the blank spaces in these statements with the correct answers.

1. Dry farming is carried on by
2. Resources that help farmers are (name 3), and
3. The presence of deposits is helpful to manufacturing.

TESTS

4. Winter wheat is chiefly raised in , spring wheat in
5. Transportation facilities are
6. Cotton is raised in , shipped and made into
(what?) (where?).
7. Fruits raised in Florida and shipped are , ,
and,
8. The coast of North America has few good harbors.
9. South America ships , and to the United
States.
10. and are important crops of both North and South America.

JUDGMENT

Cross out any words that do not belong in these statements. If the statements are correct,
leave them as they are.

1. South America has rich deposits of nitrate, copper, silver and coal.
2. The chief occupations of Canada are agriculture, lumbering, fishing and manufacturing.
3. Dependencies of the United States are Alaska, Hawaiian Islands, Virgin Islands and
Cuba.
4. Important minerals found in the Southern States are coal, oil, iron ore and copper.
5. Important crops of the states farthest south are corn, cotton and sugar-cane.
6. Chicago owes its growth to its excellent location, transportation facilities, good har-
bor, rich hinterland and climate.
7. Climate is affected by surface, surrounding waters, locations, industries and altitude.
8. Great natural advantages of Alaska are her mineral resources, rainfall, climate, fish-
eries and forests.
9. Mexico has excellent mineral resources, a good variety of climate, excellent transporta-
tion facilities and good schools.
10. The Western States are noted for mining, manufacturing, agriculture and trade.

GEOGRAPHY, 6TH GRADE

Average Age, 11 to 12½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. EUROPE.

Stand on the pier and watch that incoming liner. Her decks are filled with immigrants coming to make the United States their home. From what countries do they come? (Look up the quota figures for this year.) A great part of them come from the continent of Europe. (In the fourth grade you learned something of the *homes* of Europe. Review them.)

Which continent do you think is more thickly populated, your own or Europe? Look up the population of the United States, Canada and Mexico. Add these figures. Now find the population of Great Britain, Italy, Poland, Austria, Germany, France and Russia.

Find out the average day's wages of a working man in this country. Now find how much the same kind of worker might earn in Europe. (19-7214.)

What great disturbances and troubles have the people of Europe suffered within the past fifteen years? (18-6457-63.) Now do you begin to see what some of their reasons for coming to America may be?

Take out the physical map of Europe, and the world map. (1-44-45.) Consider Europe's *location*. Is its latitude one that is favorable for working and crop raising? Look carefully at the surface divisions as shown on the physical map. Do you see any features of this physical map that may explain the many different countries?

2. SOUTHERN EUROPE.

Portugal, Spain, Southern France, Italy, Greece, the Mediterranean. Let us take ship at *Lisbon*. Spain and Portugal were once more powerful sea-ruling nations than is England to-day. What happened? (14-5039-46, 5183-88.)

QUESTIONS

Give the nationalities that stood highest in the quota figures for last year. What are some reasons which cause people to immigrate to this country? Compare the number of countries in Europe with the number found in North America. What is a possible explanation of this difference? (See Index under Europe and North America.) From your study of your own country's products and occupations and from the physical map of Europe, what occupations would you predict for the different sections? Make a product map in this way, put it away until you have finished the study of this continent by sections, then see how nearly right you were. Remember that *climate* has a great influence here. What natural advantages has Europe? Name the principal surface divisions of Europe. What countries fall within those divisions? (See Index under Europe.) Is the latitude of Europe favorable for crop raising? Give reasons for your answer.

What advantages for trade are possessed by the countries of southern Europe? (13-4565.) What is a volcano? What influence would one tend to have upon the near-by countryside? (7-2313-14.) Where are the Pyrenees? (14-5040-41.) What cargo came aboard at Lisbon? (14-5188.) Through what strait do we sail as we enter the Med-

COURSE OF STUDY

We sail around the coast of Spain to Barcelona. (14-5039-53.) Here many of the company go ashore to see a bull fight. (See Index under Bull fight.) Compare Spain and California in climate, products, transportation, government. Let us visit the Alhambra. (15-5466-68, 5473-76.) The Alcazar. (9-3356.) On our inland journey we will stop to inspect a cork forest.

Find out how elevation, nearness to the sea, mountain wall, and latitude affect Spain's climate.

Model the Iberian Peninsula in clay or sand. (Map, 14-5041.)

Returning to our ship, we go on to Marseilles. A great load of silk is carried aboard here. Study the silk industry of France. Look up the story of silk. (15-5307-21.)

Passing on toward Italy we glimpse the island of Corsica, and do not stop until we reach *Naples*. Mt. Vesuvius is a point which we must visit. (13-4568; 7-2313.) It is only one of many places we should see in the vicinity of Naples, but we must go on to Rome and Venice. (4-1455-68.) Look up their history. (4-1191-1208; 17-6297-6311.)

What advantages has nature given Italy? (Climate, water power, and location which is excellent for trade.) (13-4565-76.) What disadvantages do we note?

Occupations of Italy

How does the Italian farmer earn his living? The silk industry in Italy. Government. (13-4565-76.)

Greece. (14-4917-19.)

QUESTIONS

iterranean? Describe the sights we see. Of what nations does Gibraltar make us think? (9-3181-82, 3187.) Why? How do you account for Spain's decline in power and greatness? (14-5046-48.) Describe the people who came aboard at Lisbon. (14-5188.) Malaga grapes come packed in ground cork. (6-2062; 14-5048.) Tell the story of the grapes and their packing. Compare Spain and California in products. (6-2057, 2058, 2062, 2064; 14-5048-53.) Describe a visit to the Alhambra. (15-5466-68, 5473-76.) Where is cork obtained? Give at least three of its uses. (See Index under Cork.) What factors influence Spain's climate? (14-5039-40.) What countries make up the Iberian Peninsula? (14-5040-41.) For what are Marseilles and Lyons chiefly noted? (11-3818-20.) Tell the complete story of a silk dress imported to the United States from France. (15-5307-21.) With what famous man do we connect the island of Corsica? (11-3820.) Why do Italians say "See Naples and then die"? (13-4566.) Describe some of the famous sights of Rome. (17-6302-08; 4-1201-08.) What debt in art and literature do we owe to Italy and Greece? (13-4566-74. Art: 2-447-51, 575-82, 691-99; 3-823-31; 5-1735-48; 3-957-64; 3-1103-12; 4-1455-68. Literature: 16-5747, 5907; 17-6149.) What city was called Queen of the Adriatic? (4-1455.) What unusual features do we notice in this city? (4-1455-68.) What handicaps has Italy? (13-4568-72.) What great trade advantage has Italy? (13-4565.) Where are Italy's foreign possessions? (18-6811.) What crops are raised on the Italian farms? (13-4570.) What helpful work is done by the rivers of Italy? (13-4568, 4572.) Is there much or little mining? (13-4572.) What are Italy's imports to the United States? (6-2058.) Which of these do we find on our dinner tables? Are any of these things raised in our own country? Where?

3. WESTERN EUROPE.

(a) BRITISH ISLES.

In the fourth grade you learned about island dwellers. Here are some island dwellers who have become a strong and powerful nation.

Location. (Disadvantage or Advantage. Give reasons.)

Climate.

People of the British Isles

1. The farmer in England, Ireland, Wales and Scotland.

BRITISH ISLES. Why is it said that England's very life is bound up in her trade? What advantages does England's location and coast line give her? Why is there excellent pasturage in Great Britain? What occupations does this indicate? (15-5576.) What cargoes must Great Britain import? What ones does she export? Compare an English farm with one in Indiana. Where is wheat grown? Oats? Flax? What textile industries are carried on in Great Britain? (14-5244-45.) In what localities?

COURSE OF STUDY

COURSE OF STUDY

2. The city-dweller in London, Glasgow, Belfast, Birmingham.
 3. The miners. (What? Where?)
 4. The coast-dwellers.
- Shipping. Transportation — within and without the kingdom. Read the story of English history. (British Isles, 4-1315-24; 4-1429-39; 5-1565-72; 5-1679-86; 5-1813-20; 14-4959-71; 6-1973-81; 6-1976-78; 11-3846-52; 6-2097-2103; 7-2293-2300; 8-2932-40.)

(b) NORTHERN FRANCE.

The French people, makers of beautiful, artistic products. The country dwellers. The French farm. The city dwellers—manufactures. Location of France. Advantage? How? Resources. (11-3813-22; 10-3430; 11-3825-28; 17-6168-70.) Paris. Read all you can about this beautiful city. Read something of the history of France. Joan of Arc. (10-3429-40; 6-2127-34; 10-3563-72; 6-2199-2208.) Transportation. Government.

(c) GERMANY. (12-4160-80.)

Life in Germany.
Germany was formed from many separate states. (11-3959-74.)
Life in Prussia.
Life in Bavaria.
Germany of to-day. The new republic.
Climate.
Resources and advantages.
Disadvantages. How overcome?
Transportation—Railroads, canals, seaports, the Berlin to Bagdad Railway.
The farmer.
The manufacturer.
Look up Denmark and Hans Christian Andersen. (15-5296-98; 9-3194-96; 5-1576.)

(d) BELGIUM. (15-5495-5506.)

1. Farming, crops.
2. Manufacturing. (Lace making, carpet making.)

QUESTIONS

What are the great steel cities? What and where are the British possessions? (7-2463, 2571; 8-2695, 2821; 9-3047, 3181, 3295.) Compare the government of Great Britain (6-2097-98; 7-2298) with that of your own country (5-1787-93). Give two reasons for the growth of London. (12-4353.)

Why do so many tourists visit France? (11-3813.) Why is there so much difference between the climate of France and that of Winnipeg, which is in the same latitude? (11-3814.) Why is the Saar basin important? (11-3818.) What is meant by the saying that we import chiefly luxuries from France? (11-3818.) Name three of the luxuries that we import. (11-3818-20.) Compare a French farm with one in Kansas. Describe the crops. What things have the people of France done to utilize the resources of their country to the best advantage? (Canal system, 11-3816.) Compare the government of France with that of your own country. (11-3822-23; 5-1787-93.)

GERMANY. (12-4160-80.) Why has Germany so many famous cities? (Connect this with the founding of the German Empire. 11-3963.) Describe the present government of Germany. Name two great natural advantages possessed by Germany. (12-4161-62.) What great handicap was overcome by the activity of the government? (The answer concerns soil. 12-4164.) What has chemical research done for Germany? Germany's route to the East was the Berlin to Bagdad Railway. What is England's route? (9-3181-82.) What important crop of Germany is an important crop of the United States? (Rye, 12-4166.) What manufactures carry the mark "Made in Germany"? Name at least three. (12-4168-70.)

BELGIUM. (15-5495-5506.) What are the products of Belgium? Why is Antwerp called a man-made port? What things show the Belgians to be industrious and home-loving?

COURSE OF STUDY

QUESTIONS

- (e) SWITZERLAND. (16-5997-6010; 17-6083-89.)

1. Her surface, climate, government.
2. Her neutrality. Why?

- (f) HOLLAND. (15-5555-68.)
The Dutch people and their home, reclaimed from the sea. Canals. Windmills.

Occupations

1. Farming.
2. Dairying.
3. Shipping.
4. Manufacturing.
5. Diamond-cutting.

The tulip gardens.

Holland's colonial possessions.

4. NORTHWESTERN EUROPE. (15-5291-5306.)

- (a) NORWAY. (15-5298-5303.)
rugged land—fiords, fish, forests.

1. Small farms.
2. Dairying.

- (b) SWEDEN. (15-5304-06.)

1. Forests—Lumbering—Matches.
2. Farming (in the south).
3. Fishing.
4. Winter sports.

- (c) DENMARK. (15-5296-98.)

- (d) Look up the Laps. (15-5304.)

5. EASTERN EUROPE.

Estonia (16-5860), Latvia (16-5860), Lithuania (16-5860), Poland (13-4685-92), Russia (16-5691-96; 16-5847-59), Ukraine (16-5850), Finland (16-5859).

The recent political readjustments undergone by these countries. Find an old map of Europe (one published before the World War) and compare it with the present map.

Products, customs, government.

6. CENTRAL EUROPE.

Austria (17-6191-98), Hungary (17-6339-42), Czechoslovakia (17-6340-44).

- (a) Climate.
- (b) Surface.
- (c) Occupations.
- (d) Transportation.
- (e) The readjustment period.

SWITZERLAND. (17-6083-89.) Why do so many tourists visit Switzerland?

HOLLAND. (15-5555-68.) Describe the sights you would see on a trip through Holland. Where and what are Holland's colonial possessions? What has Holland accomplished in governing Java?

What is meant by Norway's "white coal"? (15-5300.) What advantages does their location give to Norway and Sweden? (15-5298-5300.) Look at the map. (15-5301.) What occupations would you expect their people to follow? In which of these two countries are iron deposits found? (15-5304.) Which one has the greater amount of fishing? (15-5300.) What is meant by "Land of the Midnight Sun"? (15-5302.)

EASTERN EUROPE. Why are these countries often referred to as "new countries"? (18-6458.) Which ones have been made larger? (18-6460.) Poland. Finland. (18-6461.) What industries in this section are coming rapidly into prominence? (16-5860.) What important crop has Russia which is also an important crop in the United States? (16-5854.) What valuable mineral resources has Russia? (16-5854.) What handicaps has this section? (17-6196, 6198, 6340, 6348.)

What important crops are raised in this section? (17-6344, 6346, 6348.) What manufactured goods are produced in these countries? (17-6344-46.) What great hardships have these countries recently undergone? (17-6196-98.)

COURSE OF STUDY

COURSE OF STUDY

7. THE BALKAN SECTION.

Rumania (14-4918-22), Bulgaria (14-4922-26), Turkey in Europe (13-4797-4806).

Use map of the world. (1-44-45.) The importance of the Balkans to the rest of Europe. Surface. Climate. Occupations. Recent readjustments in government.

- (a) Constantinople.
- (b) Saloniki.

8. ASIA—The land of many different peoples.

Use your map of the world. (1-44-45.)

Location of Asia.

Location of Asia in relation to North America. Trade routes.

Note that Europe and Asia are really one land mass, called *Eurasia*.

Take out your physical map of Asia. Study the principal surface features. Compare Asia with Europe.

Climate. Note effect of the *monsoon*. *Drainage*. Chief rivers.

(a) The Southern Peninsulas. Arabian, Indian, Malay.

1. Countries or parts of countries concerned.
2. Climate.
3. Life of inhabitants as influenced by physical conditions. Customs and people. Government.
4. Important products. Tea, dates, coffee, rice, opium.
5. Important cities.

Look up the history in connection with Damascus. (18-6678.) With Jerusalem. (2-659; 5-1863; 7-2586-89; 19-7158.)

Read all you can concerning the Suez Canal. (13-4784, 4786-91.)

Java. (15-5568.)

Ceylon. (9-3184; 4-1409; 5-1857.)

Sumatra. What products?

The story of tea (2-760-71), of jute

QUESTIONS

THE BALKAN SECTION. From what country does each one of these exports come: Currants? (6-2062.) Attar of roses? (13-4806; 14-4926.) (For what is this used?) Fine rugs? (8-2698; 3-910.) Pottery? (2-434, 572.) Embroidery? (2-421.) Why does the League of Nations spend so much time on Balkan problems? (13-4797-4806.) Why is Constantinople so important a city? (13-4806-09.) On what body of water does it stand? What changes are taking place in the life and government of Turkey? (13-4806.) How do the people in this section earn their living? (13-4806.)

ASIA. Describe two routes by which you might travel to Asia. Trace these routes on outline maps. (9-3181-82; 16-5852; 2-434; 16-5848.) Make a list of the waters through which you would be obliged to pass. (9-3181.) List all possible stopping-places or "ports of call." What is meant by "Eurasia"? What surface features of Europe continue on into Asia? Which countries in Europe are in these regions? Which countries in Asia? Which parts of North America and Asia are very near together? What are tundras? (6-2170; 4-1280.) Steppes? (6-2171; 4-1281.) Deserts? (7-2416-17, 2421.) Where are they found? What people inhabit them? (18-6674, 6735-43; 9-3025; 7-2468; 8-2666-67; 6-2170-71; 7-2416-17, 2421.) Where are the principal forests of Asia? (16-5847.)

Through what waters would a vessel pass in making a voyage from Aden to Shanghai? (9-3182, 3184, 3186.) What cargo might it carry? What products might it take on at Bombay? (8-2698.) At Calcutta? (8-2698.) At Singapore? (9-3184.) What country governs India? Compare India with the United States in population (8-2695) and size. What mountains between India and China? (8-2694.) What peak of those mountains has been prominent in the news during the past few years? (8-2695.) Why? What authors have written stories and poems of India? (15-5461; 11-3899.) Who are the Hindus? Mohammedans? (8-2700-02.) Why has Bombay become so important a city? (8-2698.) What are "castes"? (8-2700.) What do we mean by the "caste system"? Why have famines been so frequent in India? Why have they grown less so? (7-2544.) Describe two novel methods of transportation which are much in favor in India. From what coun-

COURSE OF STUDY

(8-2788; 11-3792), of dates (6-2157-58), of rice (5-1623, 1854, 1856; 7-2424) and teakwood (12-4249).

Look up the subject of the valley of the Euphrates. (18-6669-72; 2-647-60.)

What is a mandate? What country holds a mandate in Mesopotamia? (18-6669.)

People, buildings, streets, customs, all are very different from our own. Find as many pictures of Indian, Arabian and Malay life as you can, and observe them carefully until you have a picture of these new scenes in your own mind. (8-2695-2702; 8-2821-36; 18-6671-73; 9-3184.)

Special topics

The Taj Mahal. (8-2701, 2835; 15-5471-72, 5477.)

Life in Arabia. (5-1601-03; 18-6735-40.)

The banks of the Ganges. (8-2699.)

A teak forest. (12-4249.)

A tea plantation. (2-760-62; 8-3000.)

- (b) Eastern plains and islands of Asia. CHINA. (2-421-36.)

See that large package with its bright wrapping and quaint lettering. It has come all the way from China, and it is tea of the finest quality.

1. Life in China.
2. Dense population.
3. Surface—rivers.
4. Occupations. Farming in China.
5. Transportation.
6. Products, especially those imported to the United States.
7. Cities, People, Customs, Government.

Special topics

The Chinese Wall. (2-424, 429, 435.)

Ancestor worship. (2-436.)

Farming in China. (5-1854-56.)

Beautiful things made by the Chinese. Chinese Art. (5-1664; 15-5472-79; 9-3094-95.)

Chinese schools. (5-1605.)

A rice field. (5-1853-56.)

The Philippines. (10-3588-90.)

Tibet, Turkestan, Mongolia, Afghanistan. (18-6583-92.)

QUESTIONS

tries do we get the following products? Rubber. (4-1408.) Quinine. (8-2909-10.) Tin. (7-2470.) Coffee. (6-2177.)

Eastern plains and islands of Asia. What do we mean when we speak of the "dense population of China"? (2-421-22.) What river is called the "sorrow of China"? Why? (2-422.) Describe the sights we might see on a trip up the Yangtse River. (2-422.) Describe farming as carried on in China. What and where are the following: Gobi? (7-2421; 6-2170.) Tibet? (18-6584; 6590-91.) Mongolia? (18-6584.) Canton? (2-436.) Hongkong? (2-436.) What two things form the chief diet of the greater part of the Chinese people? What imports does the United States receive from China? (2-434.) What governmental disturbances have affected China during the past few years? (2-436.) Describe the Chinese dress (old style), houses, religion, homes, and ways of transportation. Why is China called a land rich in undeveloped resources?

COURSE OF STUDY

COURSE OF STUDY

JAPAN.

Why is Japan, though not a large country, so important? (2-561-74.) Comparison with British Isles, in area, location, climate. Population, industries and occupations. Exports. Study the silk industry in detail. Compare the silk industry in Japan with that of France. (15-5307-21.)

Outline for study lesson on silk

1. Where produced?
2. How produced?
3. How prepared for market?
4. Spinning and weaving.
5. Uses. Markets.

Special topics

Fujiyama. (7-2317.)

A Japanese home.

A Japanese meal at home.

Japanese art. (15-5472.)

Commodore Perry's visit to Japan. (2-564.)

- (c) The Northern Plains.
Life in Siberia. (16-5857.)
The Trans-Siberian Railroad.
(16-5852.)

People who live in Siberia.

Occupations. Crops.

Special topics

Exiles in Siberia. (16-5852.)

Reindeer.

9. AFRICA

South of Europe lies a great land, Africa. Take your world map and locate this continent with reference to Asia, North America and Australia. (1-44-45.) Surface. Model a relief map in clay. Forests, deserts, fertile valleys, mountain ranges.

(a) Plant and animal life. Resources.

(b) Inhabitants.

(c) Exploration and settlement.
(3-807-08; 13-4786; 1-360-67.)

Special topics

Egypt and the River Nile.
(7-2538.)

Compare the Suez and Panama Canals. (1-360-67; 13-4786.)

Sahara Desert. (7-2416-21;
18-6808-18; 18-6735-43.)

Diamonds. (19-7228.)

QUESTIONS

What rapid progress has recently been made in Japan in industry, commerce, government and education? (2-564-66.) We see many Japanese students at our large colleges. What do you think this indicates? Describe the old costumes and art of Japan. (2-572; 15-5472.) Tell the story of silk. (15-5307-21.) Describe the industries of the country dwellers. (2-572.) What products do they export to the United States? (2-572.) What are the two chief cities? (2-570-72.) Describe manufacturing in Japan.

To what country does Siberia belong? Describe the climate. What are the terminals of the Trans-Siberian Railroad? (16-5852.) What crops are raised in Siberia? What effect do you think the Trans-Siberian Railroad will have on life in Siberia?

AFRICA. (9-3047-58; 18-6804-14.) How might I reach Africa from New York? From San Francisco? Why was Africa so long called the "dark continent"? (2-465-71; 18-6804.) Why is Africa, with all her rich advantages, so sparsely settled? (9-3054.) Why are European nations so anxious to colonize Africa? (18-6811.) What nations own or control land in Africa? Locate these sections, describe them, and give their resources: Congo Free State. (18-6812.) Soudan. (9-3054.) South African Union. (9-3050.) What are the chief products of Africa? What are the principal needs of Africa to-day?

COURSE OF STUDY

QUESTIONS

The story of a caravan.
(18-6739, 6743; 5-1602.)

The Cape to Cairo Railroad.

Things to Do

Indicate on one outline map of Africa the nations that have colonized there.

10. AUSTRALIA. (7-2463-72.)

Location of Australia.

Climate, Resources, Industries.
(4-1369; 6-2066-67.)

Controlled by what nation?

Plants and animals.

Story of settlement. (3-859-64;
7-2464-66.)

Cities and harbors.

Special topics

Sheep raising. (7-2462, 2466-
68.)

Gold mining. (7-2466.)

Wheat growing.

AUSTRALIA. (7-2463-72.) Compare Australia with the United States in size, population and occupations. Compare the seasons in Australia with those in the United States. Why are the plants and animals different from those in the United States? How was Australia first settled? (3-859-64.) Trace the voyage of a ship from San Francisco to Sydney and return. Give the cargo in both directions.

11. NEW ZEALAND. (7-2571-81.)

Important to Great Britain. Why?

NEW ZEALAND. (7-2571-81.) What are the chief resources of New Zealand?

TESTS (GEOGRAPHY, 6TH GRADE)

COMPLETION

Fill in the blank spaces in these statements with the correct answers.

1. The countries of Europe from which we receive the greatest number of immigrants are , , and
2. The principal surface divisions of Europe are , , ,
3. The gives the countries of Southern Europe great commercial advantages.
4. The latitude of Europe is favorable to and
5. Spain exports chiefly and
6. The countries of Central Europe are , and
7. In France the cities of and are noted for the silk industry.
8. Italy exports and to the United States.
9. The steel cities of England are and
10. The sugar beet region of Europe is located in

FALSE-TRUE

If you think the statement is correct, mark it with a plus (+).
If you think the statement is false, mark it with a minus (—).

1. The government of the British Isles is an absolute monarchy.
2. Great Britain has quantities of iron and coal.
3. Great Britain produces sufficient food for her population.
4. The soil of Germany is naturally poor.
5. The northern part of France has more factories than the southern.
6. The Germans are leading manufacturers of chemical dyes.
7. Switzerland has much coal but little water power.
8. There is much manufacturing in Belgium.
9. The leading occupation of Russia is manufacturing.
10. Turkey gained in territory as a result of the World War.

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. Jute, used in manufacturing woolen goods, is an important product of India.

TESTS

2. Irrigation is extensively used in Arabia, Ceylon, India, Japan.
3. Rubber is an important product of China, India, Turkey, the Malay States.
4. Standards of living are low in China because of (a) the size of the country, (b) the climate, (c) the unsettled government, (d) the dense population.
5. Africa has not been settled earlier because of (a) its size, (b) climate, (c) savage tribes, (d) high mountains, (e) difficulty of travel, (f) lack of natural resources.
6. The chief products of Africa are silk, silver, oats, wool, gold, ivory, cotton.
7. Which of the following are of great advantage to Africa? Give reasons for each answer. (a) Her coast line, (b) climate, (c) rivers, (d) minerals, (e) transportation, (f) progressive native people, (g) mountains.
8. Australia exports great quantities of cotton, rice, gold, wool, beet sugar, steel goods.
9. Draw a line under the product that belongs to the country given. New South Wales, sugar cane, teak, sheep, gold. Egypt, wheat, cork, corn, cotton, rubber.
10. Belgian Congo is important because of lumber, ostrich feathers, cork, rubber, wheat, corn.

GEOGRAPHY, 7TH GRADE

Average Age, 12 to 13½

COMMERCIAL GEOGRAPHY

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. INTRODUCTION.

Indian life before the white man came. How the Indian obtained his food, clothing, tools, weapons, cooking utensils, and his home. (1-160-65.)

Colonial and pioneer life. (2-543-55; 3-965-76.) How the colonist made his own home, clothing, food and furniture. Many steps in advance of Indian life, he still depended almost entirely upon his own efforts. Not quite entirely, for he must buy his gun, powder and shot, and many of his tools and utensils. In older, simpler days each man very nearly fed, clothed and housed himself and his family. As the business of living grows more and more complicated more and more hands are required to feed and clothe us. (14-5243-46; 15-5357-60.) On a typical dinner table would be a linen cloth and napkins, silver, china, roast beef, potatoes, beets, lettuce, cheese, rice pudding, coffee.

What is trade or commerce?

(15-5589-91.)

Trade in colonial times. (4-1157-58.)

2. OUR DEPENDENCE ON OTHERS.

Climate and location.

Soil and surface features.

The effect of these upon occupations.

Why it is not practicable for each country to grow all the things needed by its inhabitants.

3. SOME FACTORS THAT HAVE BROUGHT ABOUT MORE TRADE.

- (a) Increase in use of machinery.
(17-6362.)

QUESTIONS

Describe the Indian's home before the coming of the white man. (1-160-65.) By what processes did he obtain food? How did he preserve his food so that it would not spoil? Describe the way by which he clothed himself and his family. When he needed a new knife or axe, how did he get them?

Answer these questions for the colonist and the pioneer. (2-543-55; 3-965-76.) How was trading carried on? (5-1698-1700.) How many people fed and clothed the Indian? How many fed and clothed the colonist? Now try to count how many hands it requires to feed and clothe you. Compare the number required to feed and clothe a frontier family in colonial times with the number needed to feed and clothe your own family. Make a list of your articles of clothing and of the furnishings, cooking utensils and dishes of your own home. Put down next to each one the place from which it came. Be able to tell its story. How many of these things came from near by, how many from distant parts of your land or from far-away countries? Do the same thing for the food on your dinner table. Tell some of the kinds of trade that were carried on in colonial days.

Illustrate the ways in which we depend upon others. (14-5243-46; 15-5357-60.) Why does not each man raise his own food? Why does not each country grow enough of the necessities of life for its own people? (15-5589-91.) Illustrate your answer by England and the United States.

What is meant by the saying, "Distances are growing less every day"? What inventions cause distance to grow less?

COURSE OF STUDY

QUESTIONS

- (b) Improvement in transportation.
 Railroads. (5-1610-18;
 2-408-20.)
 Sailing Vessels. (11-3909-20.)
 Steamships. (17-6397-6408;
 12-4414-33.)
 Aircraft. (1-166-84.)
- (c) Improvement in means of communication.
 Mail. (8-2653-62.)
 Telegraph and Wireless.
 (17-6049-62, 6234-48.)
 Telephone. (17-6182-89.)
 Radio. (17-6363-73.)
- (d) Nations are growing nearer to each other.
- (e) Increase in population. (1-22,
 42-48.)

The Early History of Trade

1. Early land routes (Marco Polo). (1-84-85.)
2. Early sea routes. (1-83-84;
 11-3910-14.)
 Mediterranean.
 Greeks—Phœnicians.
3. Exploration. (1-86-90.)
 Vasco da Gama.
 Columbus.
 Magellan.
4. Difficulties of trade (in olden times).
5. Growth of modern trade.
 (Helped by inventions.)

Name three great explorers and tell what their discoveries and explorations did for trade. (1-82-90.) What handicapped trade in olden times? What inventions first caused an increase in exploration and trade by water? (16-5797; 16-5984; 12-4421-22.)

4. TRADE IN THE ATLANTIC OCEAN.

The Atlantic as a carrier of the trade of the United States.
 Size of the Atlantic.
 Distance from New York to Liverpool.
 Currents. Their influence on trade. (7-2543; 13-4826.)
 Gulf Stream.
 Winds. (1-360-70; 13-4793.)
 Prevailing Westerlies (3-878)
 and Trade Winds.
Special topic
 Panama Canal. (1-360-67.)

Name at least six great steamship lines between the United States and Europe. (12-4414, 4417.) Give the ports which they connect. What is a "port of call"? What important currents influence the Atlantic? (7-2542; 13-4826.) Make an outline map showing the courses followed by the principal steamship lines. (1-44-45.) Why are the wind currents less important in commerce than formerly? (11-3920; 17-6397.)

Ports and Trade Routes. (1-44-45.)

What constitutes a good port or harbor?
 Important ports in the United States.

What things are needed for a seaport's growth besides a good natural harbor? Illustrate your answer from the City of New York. (12-4145-47.) What are the important ports of the United States on the Atlantic coast?

COURSE OF STUDY

COURSE OF STUDY

Important ports in Canada, Europe, Africa, South America and the Caribbean.

Trade Routes. Ocean Lanes.
Find the routes most used by the great freight and passenger steamers.

Steamship Lines.

List as many of these as you can. Write the steamship companies for folders describing their routes.

Cable Connections.

(12-4293-4300.)

5. TRADE IN THE PACIFIC OCEAN.

The Pacific as a carrier of United States trade.

Size.

Distance from San Francisco to Yokohama; to Sydney.

Islands.

Possessions of the United States.
Trade with them.

Currents.

Japan Current in North Pacific.
Eddy Current in South Pacific.
Effect of these currents on trade.

Winds.

Westerlies.

Trade Winds. (8-2666, 2672.)

Monsoons. (See Index.)

Typhoons. (See Index.)

Ports in:

North America (Western Coast).

Asia (Eastern Coast).

South America.

Australia.

Coaling stations. (10-3583-88, 3592.)

Commerce of:

India.

Malay States.

Australian ports and trade.

Commerce on western coast of South America. Ports.

The Panama Canal and its influence on commerce. (1-360-67.)

Why South American trade is important.

QUESTIONS

What port of Canada has important commercial connections with Europe? (Montreal. See Index.) Why may air currents again become important to commerce? (1-170.) What is meant by the "Northern Route"? (8-2978-89.) What are its dangers? What services does the United States government do for commerce? (5-1792.) What department carries on this service? Trace the important cable connections. (12-4297.) Explain how all these things "make the world grow smaller."

What are the chief products of the Hawaiian Islands? (15-5446-51.) What advantages does their location give these islands? Japan's trade with the United States. What effect had the adoption of Western standards on her imports? (2-564, 565, 572.)

Why are the winds of the Pacific so important to shipping? (8-2698.) What does the United States import from China? (2-421.) Why does not China have more trade with the United States? What needs of China might trade with the United States help to fill? What ports of Japan carry on the most commerce? (2-570.) Of China? (2-434, 436.) Where are the United States coaling stations in the Pacific? (10-3583-88, 3592.) What United States possessions lie in the Pacific? (10-3583.) What effect have these on trade? What relation has the Pacific to Alaska? (10-3584.) What has the automobile industry to do with trade with the Malay States? (4-1406-08.) What things does India chiefly export? (8-2698.) What is Australia's principal export? (7-2466.) From what ports is it shipped? (7-2466-68.) Name the three most important ports on the western coast of South America. (19-6856.) Trace a ship's voyage from San Francisco to these ports. Describe its cargo. What things would it carry back in return? (19-6980, 7038.) Why is trade with Chile important? What has it to do with farming in this country? (19-7038.)

COURSE OF STUDY

QUESTIONS

6. THE UNITED STATES—PRODUCT SECTIONS.

The United States a country rich in resources. The basis of our prosperity. (10-3397-3400.)

Crops.

Wheat. (15-5276-78; pictures, 1-374-78; 8-2678-79.)

The wheat belt.

Climatic conditions necessary for wheat-raising.

Sowing—Harvesting.

Milling cities.

Transportation.

Rail and water routes.

Railroad centres and ports.

Sending.

Receiving.

Other wheat-producing countries. (19-7247.)

Corn. (15-5280-84; 8-2678.)

The corn area. (Reasons for.)

Sowing and harvesting.

Hog-raising.

Transportation.

Special topics

Evolution of the plow. Inventions that aid farming. (15-5278-80; 19-7209-11; pictures, 1-374-75.)

Cattle. (4-1259-64; 9-3207-09, 3211.)

The cattle area. (18-6435; 15-5276-77; 13-4524.)

Extent.

Leading states.

Slaughtering centres. (19-7118.)

Meat preparation. (7-2512-13.)

Transportation.

Railroad centres and ports.

Sending.

Receiving.

By-products. (7-2512-13.)

Leather. (5-1549-58.)

Other cattle-producing countries. (19-7035; 4-1258-68.)

Connection with the shoe industry. (18-6445.)

What are some of the natural resources of the United States? (10-3397-3400.) What conditions of the United States are favorable to wheat-raising? Corn-raising? (15-5274-84.) What climatic conditions must accompany a good wheat crop? A good corn crop? Where is the *winter wheat* section? (15-5278.) When is *winter wheat* sown? Locate the *spring wheat* section. (15-5278.) When is *spring wheat* sown? Contrast methods of plowing in the United States with methods in Mexico. What inventions make it possible to raise more wheat? (15-5278-80; pictures, 1-374-75; 19-7209-11.) What European countries take the greatest amount of our wheat crop? Which country takes the most? Why? How is wheat shipped abroad? Trace a shipment of wheat from the fields where it was grown to Liverpool.

What connection has corn-raising with hog-raising? (15-5282.) What is a threshing-machine? (Picture, 1-375.) A binder? (Picture, 1-374.) How much corn do we export? (15-5282.) Give reasons for your answer.

Locate the cattle area in the United States. (9-3207-08.) Where is the greatest amount of slaughtering done? (9-3209.) What are the meat-packing centres? (15-5276-77; 19-7118.) Name some of the by-products in the cattle industry. (7-2512-13.) What influence has the automobile industry on cattle-raising?

Sheep-raising. (9-3208; 4-1369-78; 7-2462, 2466, 2468.)

The woolen industry. (15-5574-88.)

Why is it said that sheep will live where cattle would starve? (19-6842.) Why is the United States exporting less meat to Europe than formerly? (9-3207.)

COURSE OF STUDY

COURSE OF STUDY

Make a set of product maps. Show the wheat area on one, the corn belt on another, and so on.

Fruit-raising. (6-2056-68; 8-2680.)

Cotton. (14-5166-76.)

Cotton states.

Where raised? (8-2678; 5-1626; 8-2782-84.)

Where woven into textiles? (9-3214.)

Methods of picking and packing into bales.

Transportation.

Special topics

The history of cotton. The cotton-gin. (6-1912; 14-5167.)

Sugar. (10-3415-24.)

Cane sugar.

Beet sugar.

Areas. (7-2531-33.)

Give reasons.

Other sugar-raising countries.

Ports from which sugar is sent to us.

Fisheries. (11-4050-63; 9-3208.)

Atlantic coast fisheries compared with those of Gulf and Pacific coasts.

Methods of catching and drying.

Canning centres.

Transportation by rail and water.

Fishing rights of nations.

By-products.

Other fish-producing countries.

Lumber. (16-5985-96; 18-6428-29.)

Where did the wood of which your desk is made come from?

Leading lumber areas. (8-2680; 13-4524.)

Lumbering. Saw-mill centres.

Transportation.

Uses. (7-2445-53; 8-2680.)

Important timber trees.

(12-4245-60.)

The need for conservation.

Special topic

Forest rangers. (8-2803-12.)

QUESTIONS

What have refrigerator cars done for fruit-raising? (2-528-35.)

How did your cotton blouse get from the cotton plant to you? (14-5166-76.) Which is the leading cotton state? What are the chief uses of cotton? Where are cotton textiles made? (9-3214; 14-5168.) What are the ports from which most of our cotton is exported? What European ports receive most of the crop?

Does the United States raise sufficient sugar for its own needs? (8-2680.) If not, from what countries do we import it and *how much* do we import? Give reasons for the beet and cane sugar areas. (7-2531-33.) What country developed the sugar-beet?

What is the continental shelf? (See Index.) Why are fish found there?

Describe the methods of catching and preserving salmon, cod and herring. (11-4050-63.) What uses other than eating are made of fish? Discuss the importance of fish as an export. Give reasons for your answer.

Give the most important uses of lumber. Where are the most important lumbering areas? (8-2680; 10-3408; 13-4524.) Why are far-sighted people anxious that we conserve our forests? (12-4250.) What does the government do for the forests?

COURSE OF STUDY

QUESTIONS

Minerals:

- Coal. (3-785-802.)
 - States producing anthracite coal. (11-3773; 9-3210.)
 - States producing bituminous coal. (17-6040; 13-4526.)

Iron. (6-1934-54.)

- Iron ore area. (6-1934, 1936, 1938; 9-3208.)
- Transportation. (Stress importance of Great Lakes.) (6-1955-63, 1937.)

Oil. (13-4535-52.)

- Oil area (Petroleum). (13-4538.)
- Influence of presence of coal and iron on industry. (6-1936-38; 3-788.)
- Special topics*
- The Soo Canal. (6-1956.) How coal was formed. (3-785-87.)
- By-products of coal. (3-794.)
- How oil was discovered. (13-4533-35.) Drilling for oil. (13-4540-49.)
- Other countries with large oil deposits. (13-4538.)

Copper. (9-3208; 17-6038.)

- Where found?
- Why important?
- How refined and where? (9-3215.)

Gold and Silver. (9-3208, 3210.)

- Uses. (18-6549, 6550; 16-5680.)
- Mining. Different methods used. (19-6843; 16-5790.)
- Other gold and silver producing countries. (9-3208, 3210; 7-2466-70, 2576.) See Index under Gold and Silver for other references.)

Special topic

- Discovery of gold in California and the settling of the West. (6-1922; 18-6430.)

Manufactured Products:

1. Machinery. (17-6362.)
2. Automobiles. (19-7015-23.)
 - Centres of industry. (9-3214-16; 17-6041-42.)
 - Countries to which we export.

Why is Pittsburgh a great industrial centre? (6-1936, 1938; 11-3777.) Why is Birmingham called the "Pittsburgh of the South"? (13-4526.) Which is cheaper, to bring coal to the iron section or to carry iron to the coal section? (6-1936-38.) Why must we do either? How does the United States compare with Great Britain with regard to the amount of coal mined each year? (10-3399.) Why is oil important? Name the different ways of transporting oil. (13-4536, 4537, 4551, 4552.) What is coke? (3-788; 6-1936-38.) Why have the nations of the world become so interested in oil? What relation is there between the automobile and the oil supply? Will oil ever take the place of coal? (13-4539.)

Why is copper important? (9-3208.) Where are the copper regions of the United States? In what sections is copper refined and smelted? (9-3215.) Why?

Why are gold and silver used for money? (16-5680.) Describe different methods of gold mining. Where are some mining towns deserted although there is still gold-bearing ore present? Where do gold and silver rank in importance as products? (9-3208, 3210.)

What is meant by the saying, "The American tractor goes around the world"? (19-7209-11.) Name some of the types of machinery exported by the United States. Where are these made? Why? Why does not the United States produce its own raw

COURSE OF STUDY

COURSE OF STUDY

Some things for which we are dependent on other countries:

Rubber. (4-1405-14.)

Tea. (2-760-72.)

Coffee. (6-2177-84.)

Drugs. (8-2909-13.)

Dye-woods. (9-3152-54.)

Raw silk. (15-5307-09.)

QUESTIONS

silk? (15-5308.) In what section are the great silk mills? (9-3214-16.) Who uses the silk woven in the United States? Is any of it exported? Why is this? What is artificial silk? (15-5310; 13-4828.) Compare the silk made in the United States with that made in Europe.

Questions for Class Discussion

Is it possible for the United States to remain isolated from other countries?

In what ways are we affected by conditions in other countries?

What effect has the building of canals and railways upon the commerce of the country?

Should the United States relinquish all claim to the Philippines? (10-3588-90.)

TESTS (COMMERCIAL GEOGRAPHY, 7TH GRADE)

COMPLETION

Can you pass this examination? See how many questions you can answer without help of any kind. Fill in the blank spaces with the correct answers.

1. Coal is important because depends upon it.
2. The use of electricity has increased the demand for (a mineral).
3. and supply most of the world's iron goods.
4. The growth of the Middle West was hastened by the building of and
5. Spring wheat is grown in the section; winter wheat in the part of the United States.
6. is an important crop of the Central South.
7. Cane sugar refineries are located on the because
.....
8. and are noted for flour milling.
9. New England manufactures chiefly and
10. The automobile industry has increased the importance of, and

FALSE-TRUE

If you consider the statement correct, mark it with a plus (+).
If you consider it incorrect mark it with a minus (—).

1. The United States produces only one-third of the world's supply of copper.
2. Next to South America, Asia is North America's nearest neighbor.
3. The United States must import large quantities of wool.
4. Corn is not exported in large quantities.
5. Milling is an important industry of Kansas City.
6. River transportation was formerly of more importance than at present.
7. Cincinnati is famous for its great steel mills.
8. The United States raises sufficient sugar for its own consumption.
9. Russia must import great quantities of grain and machinery.
10. The United States produces enough coffee for its own consumption.

COURSE OF STUDY

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. The colonists manufactured (a) both cotton and woolen goods, (b) woolen goods only, (c) cotton goods only.
2. Raw silk is not produced in the United States because (a) the climate is unfavorable for it, (b) labor is too costly, (c) we have no food for the silkworms.
3. South America produces (a) more rubber than any other country, (b) less rubber than any other country, (c) an equal amount of rubber with the Malay States.
4. Atlanta, St. Louis, Pittsburgh, Galveston, Detroit, New Orleans and Birmingham are important cotton-spinning centres.
5. The United States ranks first, second, third in oil production of the world.
6. Tanneries (a) were formerly always located near forests, (b) must still be located near forests, (c) no longer depend on forests.
7. Give reasons for your answer to No. 6.
8. China's chief products are manufactured silk, embroideries, carvings, tea, railroad equipment, tin, sugar.
9. New England turned from agriculture to manufacturing because of her poor soil, good native water power and coal deposits.
10. Brazil produces about $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ of the amount of coffee used in the world. Draw a circle around the fraction which is nearest the correct answer.

GEOGRAPHY, 8TH GRADE

Average Age, 13 to 14½

PHYSICAL GEOGRAPHY

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. THE EARTH AS A PLANET. (1-17-25.)
Do you know that this earth on which we live is called a planet?
The 8 large planets and 500 smaller bodies all revolving about the sun are called the Solar System.
2. SIZE OF THE EARTH. (1-43-48.)
Size in comparison with other planets. (9-3178-80.)
Relative amounts of land and water. (1-44-45.)
Distance from the sun and other planets. (Color plate, 1-16.)
3. SHAPE OF THE EARTH. (1-22; 7-2603.)
Proofs. (Be able to give at least *five*.)
Beliefs of the ancients. (1-22, 83.)
Some navigators who discovered the true shape of the earth. (1-83-90.)
4. MOTIONS OF THE EARTH. (1-235-39.)
Effects of *rotation*.
Axis, Poles, Equator.
Revolution. Its effects.
Time of these movements.
5. THE SEASONS.
Causes of change of season.
Be able to explain and illustrate by diagram, Spring, Summer, Winter, Autumn, Equinox and Solstice. (1-18-19.)

QUESTIONS

Are there any other planets besides the earth? (9-3178-80, 3289-93; 10-3409-14.) Name them. How did these planets get their names? Can you see them? (Maps, 1-23, 25.) How did the Solar System come into existence? (1-141-44.) What theories are given to explain the coming into being of the Solar System? What is an orbit? (9-3180.) Make a drawing showing the planets and their orbits in the Solar System. (Maps, 1-18-19, 23; 9-3290; 10-3414.) What amount of the earth's surface is land? What amount is water? (6-2169-70.)

What is the circumference of the earth? The diameter? (1-43; 2-385; 9-3171.)

What is the earth's distance from the sun? (9-3180.) What do we get from the sun? (9-3178.) How does the *amount* of sun influence man's ways of living? (8-2663-68; 2791-94.) Illustrate your answer by at least three different types of countries.

Give five proofs of the shape of the earth. (1-22; 7-2603.) What did the ancients believe concerning the shape of the earth? (1-22, 83.) Name some navigators who proved that the earth was spherical in shape. (1-83-90.)

Does the earth move? (1-18-19, 24, 235-39; 15-5517.) How many motions has it? What do we mean by *rotation*? What are its effects? Define axis, poles, equator. What is revolution? Give the time required by these movements.

What causes change of seasons? Give three causes. (8-2663-68, 2791-94.) Draw a diagram showing positions of the earth and the sun's rays during Spring, Summer, Autumn and Winter. When is the North Pole turned toward the sun? (1-18-19.) Where does

COURSE OF STUDY

COURSE OF STUDY

Rays of sun as affected by these changes.
Length of day and night. (14-5217; 16-5845.)
Effect of change of seasons on life of mankind.

6. ZONES.

Circles.
Animal and vegetable life in each zone.

7. THE MOON. (1-22, 24, 144; 4-1353, 1449-50; 10-3535-44.)

A satellite—meaning of the word.
Examples of satellites.
Phases of the Moon. (10-3540.)
Study diagram.
Meaning and explanation of:
New Moon.
First Quarter.
Full Moon.
Last Quarter.
Eclipse.
Define and explain.

8. GRAVITY. (1-142, 280; 2-386, 583-84, 622; 7-2362; 13-4795-96; 14-4903, 5177-81.)

Gravitation.

9. TIDES. (2-583-84; 7-2542; 10-3734; 11-3843; 18-6558.)

Causes.
Kinds or names.
High or flood.
Low or ebb.
Tidal bore.
Effects of tides.
Their importance.

10. OCEAN CURRENTS. (7-2542; 16-5960.)

Causes.
Principal ocean drifts.
Effects on climate.

11. LATITUDE AND LONGITUDE.

Their importance; uses of each; how to find them. (1-18-19.)

QUESTIONS

the circle of light reach in Spring? Summer? Winter? Where is the most direct ray of the sun at each season? What change takes place in the length of day and night? What changes do you make at home when Spring comes? Winter? Summer? Clothing, food, heating and garden? How do the seasons affect the farmer's life?

What are zones? (8-2792-94.) What types of animal and vegetable life are found in each zone? What effect on the life and activity of the people has the zone in which they live? Illustrate by naming zones and countries.

Why is the moon called a satellite? (4-1449-50.) What does the word mean? Has the sun any satellites? Have any other planets any? (9-3180, 3293; 10-3409-10, 3535.) Do they move? How? What keeps them on their orbits? Make a diagram showing New Moon, First Quarter, Full Moon, Last Quarter. (10-3540.) What is an eclipse? (9-3170, 3172; 16-5843-44.) What causes it? Illustrate by a diagram.

What is the difference between gravity and gravitation? (13-4795-96; 14-5177-81.)

Why do ocean liners leave New York at midnight? At noon? What causes tides? Give two causes. What kinds of tides do you know? At what phase of the moon do we have Spring tide? Neap tide? What is a tidal bore? (See Index under Tides.) What are some of the effects of tides? Why are they so important?

Discuss the work and training of pilots. Name and locate four important ocean drifts. Which is the most important of the currents? What effect on climate would result if the Gulf Stream were turned north through Davis Strait? (13-4826.) Explain the difference in the climate of the State of Washington and Newfoundland.

How did the navigators on the Norge find their position? How did they tell others what this position was? What is latitude?

COURSE OF STUDY

- Degrees.
- Number in a circle.
- Parallels of Latitude.
- Meridians.
- Prime Meridian.
- Sub-Meridian.
- The compass. (11-3787-90; 12-4421-22; 16-5797, 5984; 17-6248.)
- International Date Line. (16-5841.)
- Problem*
- How do mariners and airship pilots find their exact location? (12-4421.)
- Standard time. (16-5841, 5842, 5845.)
- How decided upon?
- How regulated?
- Time sections of the United States.

QUESTIONS

(1-19.) What is longitude? (See Index.) How are these found? How many degrees in a circle? (11-4132.) What are parallels? Meridians? What are the uses of the compass? Describe the way in which it works. What is the International Date Line? (16-5841.) Why was it established? Is it straight? Give reasons. What is standard time? How is it regulated? How are reckonings made? What are the different time sections of the United States? (16-5841.) What is the principle of daylight saving? (17-6289.) Find the latitude and longitude of the place where you live. One degree of latitude equals how many miles? Find the latitude of the United States. Through how many degrees of latitude does it extend? To how many miles is that equal? What are Standard Time Belts? When it is seven o'clock in the morning in New York City what time is it in Denver? (16-5841.)

12. ATMOSPHERE.
- Dew, fog, clouds. Causes.
- Humidity.
- Frost. Hail.
13. WINDS.
- Causes.
- Trade winds.
- The equatorial belt of calms.
- Effects of the earth's rotation.
- Wind belts.
- Classification of winds.
14. RAINFALL.
- Causes.
- Connection between winds and rains.
- Rainfall in the United States.
- Winds that are good rain-producers.
- Cyclones.
- Hurricanes.
- Waterspouts.
- Tornadoes.
15. VOLCANOES. (7-2313-14; 8-2873-74; 9-3237; see also list in Index.)
- Earthquakes. (2-568; 5-1811; 14-5219-20; 18-6554.)
16. GLACIERS. (7-2315, 2316, 2318; 11-3819; 6-2250; 15-5298, 5300.)
- Ice-sheets. Icebergs.
- Types of these.

How is dew formed? (8-2922.) What connection have clouds with this process? What is frost? (8-2922; 14-4904-12.) Hail? (8-2923-24; 18-6556.)

What is wind? (18-6691-92.) What produces it? Of what aid to mankind are winds? What are "trade winds"? (3-873; 8-2666, 2792, 2794.) What is the equatorial belt of calms? Why were the Horse Latitudes so named? (7-2486.) Name all the kinds of winds you know. What causes trade winds, monsoons, land and sea breezes? (8-2794.) What form of transportation is greatly affected by the winds? (2-455-56.)

What causes rainfall? (8-2666, 2921-24.) What connection is there between winds and rainfall? (8-2794, 2923.) Make a map illustrating the rainfall of the United States. What are cyclones? (18-6692.) Hurricanes? What is a tornado? A waterspout? (5-1809.) What winds are good rain-producers?

Make a drawing of a volcano, showing its principal parts. (Colored picture facing 2-385.) Name some type volcanoes. What is a young volcano? An extinct volcano?

What was the continental ice-sheet? (6-1925-28.) What work was done by the ice-sheet in North America? In Europe? (1-158; 6-1955-56, 2069-70.) Describe the

COURSE OF STUDY

COURSE OF STUDY

Causes.
Effects.

17. WEATHER.

Causes.
Weather instruments.
Weather bureau.
Weather maps.

18. CLIMATE.

Causes.
Influencing factors.
The effects of climate on plant and animal life and on man.
How man overcomes his environment.

QUESTIONS

effects on man of some great earthquakes. (2-568, 573; 17-6060.) How are icebergs formed? (4-1355.) Why are they a menace to sea-vessels?

Of what things is weather the result? (8-2663, 2921-24.) Name two weather instruments and describe their uses. (3-1028, 1152; 7-2648-49; 8-2718; 10-3625; 12-4502; 15-5287-88.) What is the weather bureau? (5-1792.) Write a paragraph on this service. What are weather maps? What are "low pressure areas"? (15-5287.) How are storms predicted?

Are weather and climate the same thing? (8-2663.) Illustrate. What are some factors that influence climate? (6-2171; 8-2663-68, 2791-94; 9-3101.) What is the effect of climate on plant and animal life? Illustrate your answer by each zone. What influence has climate on the life of man and his activities? Illustrate by zones. Give instances in which man has conquered his environment. Tell how. How far can man go in conquering climate?

CURRENT GEOGRAPHY

1. Does an acre of land pay better if used for agriculture or if used for grazing? Supplementary problem: Why, then, is any land used for grazing?
2. Why is sheep-raising replacing cattle-raising in many Western states?
3. Much iron ore is mined in Minnesota. Why is so little iron and steel manufactured there?
4. Why has manufacturing developed faster along the Great Lakes than along the Mississippi River?
5. Which section of the United States has the largest number of cities? Why?
6. Why has New York grown so much faster than Philadelphia and Boston?
7. Why is Cuba so great a sugar exporter?
8. What resources has Mexico that might make it a manufacturing country? Why has it not become so?
9. Which of our industries would be harmed if we could no longer obtain products from South America?
10. What influence may conditions in the farm belt have on our political history?
11. What relation is there between the numerous mountain ranges and the political history of Europe?

GEOGRAPHY, 8th GRADE

12. Why does England watch the Egyptian situation so closely?
13. What connection is there between a crowded country and colonization? Is there any possible connection with warfare? What?
14. What are the great undeveloped regions of the earth? What factors may lead to their settlement?
15. The Philippines. Should the United States grant them complete independence? Give reasons on both sides.
16. What are the possessions of Spain and France in Northern Africa? What war has just closed in that section?
17. What is the Tacna-Arica dispute? Illustrate with map. Explain plebiscite.
18. Why are Java, Sumatra and the other East Indies so important?
19. What industry has brought the Malay States into such prominence as an exporter?
20. Why is France so extensively engaged in manufacturing and commerce?
21. Why has Great Britain developed so extensive and such world-wide commerce?
22. Why have oil deposits become so important and valuable a resource?
23. Why has Great Britain a more extensive foreign trade than France?
24. China. What factors have caused China to be slow in developing her resources? What are her governmental difficulties?
25. What situation is causing difficulty in the Austro-Italian Tyrol?

TESTS (PHYSICAL GEOGRAPHY, 8TH GRADE)

FALSE-TRUE

Put a plus (+) after any of these statements that are true; a minus (—) after any that are false.

1. The sun revolves around the earth.
2. The seasons are caused by the inclination of the earth's axis.
3. The sun is the source of heat and light.
4. Longitude is distance north or south from the equator.
5. Only one side of the moon has ever been seen from the earth.
6. Revolution is the movement of the earth turning on its axis.
7. Gravity and gravitation are the same thing.
8. The moon is a satellite of the earth.
9. As I travel westward from New York to Denver I must turn my watch ahead.
10. The heaviest rainfall in the world is at the equator.

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. Tides rise and fall twice every day in the Pacific Ocean, because of the latitude.
2. Icebergs are caused by the effect of the Labrador Current, which breaks great masses from glaciers that extend down to the sea.
3. The International Date Line has been so drawn that no two neighboring regions belonging to the same country, and having the same temperature, shall have different dates at the same time.
4. Weather and climate are the result of (a) temperature of the air, (b) the downward pressure of air, (c) the amount of moisture in the air.
5. Great Britain was compelled to become a great commercial nation because she could not raise enough food supplies, raw materials, and minerals to support her population.

GUIDE TO GEOGRAPHY OUTLINES

If you are studying *home* and *local geography*, consult the 4th grade outline.

If you are studying North America, South America, United States in detail, use the 5th grade outline.

For Europe, Asia, Africa and Australia consult the 6th grade outline.

For trade relationships of the United States and for geography in the United States by industries, use the 7th grade outline.

For physical geography and for suggestive problems based on current events, consult the 8th grade outline.

HISTORY, 4TH GRADE

Average Age, 9 to 10½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

INTRODUCTION

The history of our country is the story of Americans and their doings. These Americans all came originally from many different lands, all except the *first American*. How he came here we do not know. He is the *Indian*.

1. THE FIRST AMERICAN, THE INDIAN.

Different tribes or nations. (1-165.)

(a) The Eastern Indians.

Algonquin.

Iroquois, etc.

Seneca.

(b) The Western Indians.

Sioux.

Navaho.

Dakotas, etc.

Where these lived.

How they built their homes. (5-1658; 1-160, 161-62; pictures, 1-163-64.)

How they raised crops and hunted game. (1-161.)

How they dressed. (9-3251-52.)

Their clothing, weapons and customs. (1-160-65.)

Find out what kinds of Indians once lived where you now do.

What has become of the Indians?

2. THE PEOPLE WHO FIRST SETTLED IN YOUR LOCALITY.

Find out their names. What nationality they were. How they came to settle where they did.

Visit the historical landmarks near your home. Find out their stories. Next study the history of the settlement of your own state. Find out the same things you looked up for your own town or village.

3. LOCAL HEROES.

Some of our country's heroes (as suggested by the holidays most generally observed). (6-2087-95.)

QUESTIONS

Why is the Indian called the first American? (1-160.)

Name some tribes of Eastern Indians. (1-165.) Describe the way in which they built their homes. (5-1658; 1-160-62.) Which Indians lived in the "long house"? Describe the training and schooling you would have received had you been a little Indian boy. By what means did the Indian gain his food? His clothing? (1-160-65.) Read the story of Hiawatha. (19-6985-86.) What was a medicine-man? (1-162.) Name some tribes of Western Indians. (1-165.) Describe their homes. (1-160.) Why does the Indian feel that the white man has not always treated him fairly? (3-778; 19-7235-36.) How did the Indians treat the first white men they saw? (19-7235; picture, 1-247.) What great American colonist never had any trouble with his Indian neighbors? Why? (William Penn, 2-552-53.)

Tell the history of the settlement of your own home. Who first cleared the land? Describe the first homes made there by white men and women. How did these settlers come to your home? Describe some of their hardships. Name some of the men prominent in the settlement of your own state. What landmarks are there near your home?

Why do we find so many places in the United States named for George Washington? (3-1039-42.) Why is he spoken of so often and with such respect and affec-

COURSE OF STUDY

COURSE OF STUDY

- (a) Washington. (3-1039-42.)
- (b) Lincoln. (3-1045-50.)
- (c) Hudson. (1-251; 14-4971.)
- (d) Lafayette. (4-1168; 6-2128, 2130; 10-3566.)
- (e) Hamilton. (10-3488-89.)
- (f) Jefferson. (3-1042-43.)
- (g) Lewis and Clark. (5-1703; 18-6426.)

Try to learn more than little amusing stories about them. Why do we call them great? What did they do for our country? Learn how they placed the good of America above their own interests. They were great Americans. In what ways can you be like them? Make a scrap book containing local history and the histories of these prominent men of your country. Read all you can find about them. How long ago did they live? How did they dress? (2-393.) When they went on a journey how did they travel? (5-1698.) How long did it take a letter to go from Philadelphia to Boston in those days? (5-1700.) Homes of those days. (5-1700.) Schools. (3-966-70.)

4. SOME GREAT LEADERS IN THE WORLD'S HISTORY IN OLDEN TIMES.

- (a) Pericles. (2-706; 3-1080; picture, 2-705.)
- (b) Alexander. (2-707-08; 8-2822, 2961, 2964; pictures, 3-913; 2-709.)
- (c) Cæsar. (4-1198-99, 1366-68; picture, 4-1360.)
- (d) Clovis. (10-3430; picture, 10-3431.)
- (e) Charlemagne. (10-3430; 11-3960; picture, 10-3433.)
- (f) Alfred. (4-1432-34; picture, 13-4587.)
- (g) Justinian. (13-4812.)

Look for pictures and descriptions of the times in which these men lived. Find out all you can of the customs of those days.

5. HOW THE MOVEMENT FOR THE DISCOVERY OF AMERICA BEGAN.

- (a) The beginnings of trade with the East. (1-83-85, 89; 8-2978.)

QUESTIONS

tion? Tell some of the things he did for our country. Give a short account of his life. What great services did Abraham Lincoln do for America? (3-1045-50.) Describe his life as a boy, his efforts to get an education. Why was he called "Honest Abe"? Why do we say that he saved the nation? What qualities had Lincoln that we might all well imitate? Where are Hudson Bay and River? Tell the stories of their discovery. (1-251; 14-4971; picture, 1-247.) What nation aided our country at the time of our revolution? (4-1168; 6-2128, 2130; 10-3566.) What Frenchman will we always remember with gratitude? Tell his story. (4-1168; 6-2128, 2139; 10-3566.) Who was Alexander Hamilton? (10-3488-89.) What services did he render his country? Tell the story of his life. What was the Declaration of Independence? Who wrote it? (20-7553.) Tell the story of this man's life. (3-1042-43.) What services did he do for the United States? What explorers first went through the northwestern part of our country? (5-1703; 18-6426.) Who sent them? Describe their hardships and the great things they accomplished. Describe life in this country at the time each one of these men lived. Customs of dress, travel, homes, newspapers, mails, schools. (5-1698-1700.)

Tell the story of Pericles. (2-706; 3-1080.) Who was Alexander? (2-707-09; 8-2822, 2961, 2964.) Why did he mourn because there were no more worlds to conquer? To what nation did Cæsar belong? (4-1198-99, 1366-68.) Why was he called "Great Cæsar"? Tell the story of Clovis. (10-3430.) Who was Charlemagne? (10-3430; 11-3960.) How long ago did he live? Tell the story of his life. To what nation did Alfred belong? (4-1432-34.) What sort of man does history tell us he was? What service did he do for his people? What great work did Justinian do? (13-4812.)

Where was "the East"? Why were men so anxious to trade with it? (1-83-84, 89; 8-2978.) Take your map and trace some of the early voyages of Marco Polo. (1-83-85.) Describe his travels. What lands did

HISTORY, 4th GRADE

COURSE OF STUDY

- (b) Voyages to find a new route to the East. Why desired?
Columbus. (1-86-89.)
De Gama. (1-89.)
Magellan. (1-90; 8-2980;
9-3295-96.)
- (c) Olden beliefs concerning the shape of the earth and monsters of the deep. (1-22; 9-3235-36.)
- (d) Invention of the compass. (16-5797.)
- (e) Invention of gunpowder. (5-1682.)
- (f) Invention of printing. (9-3381-82.)
Influence of each of these.
Make outline maps showing the routes traveled by each of these explorers. Put only one explorer and his voyage on each map. Color the part of the New World that he claimed for his sovereign.

QUESTIONS

he visit? Why were the nations so eager to find a new route to "the East"? Describe some of the rich cargoes that came westward. What countries carried on the greatest part of the trade? Why was Columbus so anxious to make a voyage? (1-86-89.) What did he hope to accomplish? Did he plan to discover a new world? Tell what you know of his hardships and trials. Describe Columbus' voyage. What country did he think he had found? For whom did he claim it? Describe Columbus' later voyages and death. (Make a model of Columbus' ship from the picture.) Why did Columbus name the red men "Indians"? (9-3190.) Who was Vasco da Gama? (1-89.) Describe his travels. For what country did he sail? For what country did Magellan sail? (1-90; 8-2980; 9-3295-96.) Why do we remember his voyage so especially? Where is the strait that bears his name? Why was it so called? Tell the story of the voyage of Magellan's flagship. Did Magellan sail around the world? What inventions influenced these voyages of discovery? How? (16-5797; 9-3381-82.)

CIVICS, 4TH GRADE

AIM: To give the child an understanding of working for the common good.

COURSE OF STUDY

The desirability of a clean city, town, or countryside. What we can do to keep it clean and thereby make it beautiful. How public servants help us. How we can help them.

QUESTIONS

How can we help make our city clean? How can we help to keep it so? What public servants help us all? How can we help them?

HISTORY, 5TH GRADE

Average Age, 10 to 11½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

I. EXPLORATION AND DISCOVERY.

The Northmen. (15-5291-92; 1-241; pictures, 1-240, 243.)

Review Columbus. (1-86-89.)

The Cabots. (1-242; 8-2978, 2980.)

Drake. (14-4962-65; 1-250; 8-2980.)

Raleigh. (14-4965-70; 17-6333-37; 5-1818; pictures, 5-1812; 14-4958-59.)

Vespucius. (1-242; 8-2980.)

Balboa. (1-242-43; picture, 1-253.)

Magellan (Review). (1-90; 8-2980; 9-3295-96.)

Coronado. (1-244, 246.)

Cortez. (1-244; 19-7132-33; picture, 1-254.)

De Leon. (1-242.)

De Soto. (1-244; picture, 249.)

Champlain. (2-679-80; 1-246, 248.)

Cartier. (2-678-79; 1-246.)

Hudson. (1-251; 14-4971; pictures, 1-247; 11-4109.)

2. THE BEGINNING OF COLONIZATION. (2-543-52.)

New York.

Virginia.

Massachusetts.

Maryland.

Rhode Island.

Pennsylvania.

Their reasons for leaving the Old World. The kind of men and women they were.

The location of each colony.

Climate.

Resources.

The French and Spanish settlements.

French. (2-677-80.)

Spanish. (19-7131-36.)

Problem

On sets of outline maps, color the part of North America claimed by each European nation. (1-252.) Make a key at the side showing by right of what discovery the land was claimed. On one large map

QUESTIONS

Where did the Northmen live? (15-5291-92; 1-241.) What parts of this country are they thought to have visited? Did they leave any traces in America? What land did Columbus claim? For whom? (1-86-89.) Why were all these countries so eager to gain new territory? What were the leading nations of Europe at this time? Look up the battle of the Spanish Armada. (5-1820; 14-5044, 5046.) What influence do you think it had upon the desires and acts of the countries concerned? Who were the Cabots? (1-242; 8-2978, 2980.) For what land did they sail? What land in America did they claim. Tell all you can about Sir Francis Drake. (14-4962-65; 1-250.) Who was Sir Walter Raleigh? (14-4965-70.) Where was the "lost colony"? (17-6333-37.) Describe some of the hardships these early settlers suffered. Why did they all settle so near the ocean? Why do we remember Americus Vespucius? (1-242; 8-2980.) Do you think this continent should have been called Columbia? Why? Who was Balboa? (1-242-43.) For what important discovery do we remember him? Tell the story. What land did he claim? For whom? Re-trace Magellan's voyage. Why was it important? (1-90; 8-2980; 9-3295-96.) Why did the Spanish feel that the New World should be theirs? (2-252.) Where did Coronado land? (1-244, 246.) Trace the marches of Cortez. (1-244; 19-7132-33.) With what people did he come into conflict? Describe them. Describe the war the Spaniards fought against them. Where were the explorations of De Soto? (1-244.) Tell the story of his wanderings and death. For what discovery do we remember him? What lake in the Northeastern part of New York State was named for a famous French explorer? (2-679-80; 1-246, 248.) What grave mistake did he make that cost France the friendship of the powerful Iroquois? Tell the story of his wanderings. What settlements did he make? For what country did Henry Hudson sail? (1-251; 14-4971.) Review the story of his explorations and discoveries. How did it

COURSE OF STUDY

show all the different claims.
Can you foretell what must soon
follow all these conflicting claims
and disputes?

3. SOME EARLY COLONIES AND
THEIR LEADERS.

(a) THE DUTCH. (2-550, 552.)

Leaders in New Amsterdam.

Peter Minuit.

Peter Stuyvesant.

Customs.

Government.

Trade.

Troubles with the Swedes.

The "patroon" system.

Surrender of New Amsterdam. Why?

(b) THE ENGLISH.

VIRGINIA. Jamestown.

(2-543-46; 14-4970-71.)

Settlement.

Climate and soil.

Captain John Smith.

Pocahontas.

Early struggles.

The "starving time."

Introduction of slavery.

Government.

MARYLAND. (2-550, 552.)

By whom settled? Why?

Government.

MASSACHUSETTS.

1. Plymouth: the Pilgrims

(2-544, 546-48, 555.)

William Bradford.

(12-4445-46.)

Miles Standish.

The First Thanksgiving.

(6-2090.)

The Indians.

Government.

2. Massachusetts Bay. (2-546,
548-50, 555.)

John Winthrop. (10-3487;
12-4446.)

John Endicott.

King Philip.

Government.

RHODE ISLAND. (2-550.)

Its settlement.

The story of Roger Williams and
Anne Hutchinson. (14-
5267-68.)

Government.

QUESTIONS

happen that a man often claimed land for
a country other than his own?

NEW AMSTERDAM. (2-550, 552.) Who
first settled New York? Why? Describe
their life, houses, customs, government and
trade. Write a paragraph about Peter Min-
uit. Who were the "patroons"? How did
New Amsterdam become New York? Tell
as much as you can about Peter Stuyvesant.
What great natural advantages had New
York? What traces of the Dutch are left in
this country?

VIRGINIA. (2-544-46; 14-4970-71.) By
whom settled? For whom named? What
sort of men and women settled Virginia?
Why did they leave England? Who was
Captain John Smith? Pocahontas? What
was the "starving time"? Tell the story of
the introduction of negro slavery into Vir-
ginia. What kind of government had Vir-
ginia? What crops were raised?

MARYLAND. (2-550, 552.) Who settled
Maryland? Why? For what thing do we
especially remember Lord Baltimore?

MASSACHUSETTS.

Plymouth. (2-544, 546-48, 555.) Why
did the Pilgrims leave England? Tell the
story of their wanderings. Describe their
voyage to America. Who was William Brad-
ford? Miles Standish? Read the story of
Miles Standish. Tell the story of the first
Thanksgiving. (6-2090.) How did the In-
dians treat the Pilgrims? What sort of soil
did the Pilgrims find in America? Describe
some of their hardships.

Massachusetts Bay. (2-546, 548-50, 555.)
Who were the Puritans? Where did they
settle? Who was John Endicott? John
Winthrop? King Philip? Tell King Philip's
story.

RHODE ISLAND. (2-550.) How did
Rhode Island come to be settled? Tell
Roger Williams' story. Who was Anne
Hutchinson? (14-5267-68.) What thing
must be always remembered in connection
with Rhode Island?

COURSE OF STUDY

COURSE OF STUDY

PENNSYLVANIA. (2-552-53.)
The story of its settlement.
The Quakers.
William Penn.
Penn's treaty with the Indians.
The founding of Philadelphia.
Government.

- (c) THE SPANISH. (1-242, 244-46;
6-1922; 18-6826; picture, 18-6829.)
In Florida and California.
St. Augustine. (18-6825; pic-
ture, 18-6829.)
Santa Fé. (2-543.)

- (d) THE FRENCH. (2-677-83.)
In Canada and the Ohio Valley.
Quebec.
Montreal. (Picture and note,
4-1482.)
Marquette and Joliet. (18-6631-
34; 1-248, 250.)
La Salle. (1-248, 250.)

QUESTIONS

PENNSYLVANIA. (2-552-53.) Who were the Quakers? Who was William Penn? Tell the story of the founding of Pennsylvania. Why had Penn no trouble with the Indians? Describe the founding of Philadelphia. Why is it called the "City of Brotherly Love"?

THE SPANISH IN NORTH AMERICA. (1-242, 244-46; 6-1922; 18-6826.) Why did the Spaniards come to the New World? In what parts of the country did they settle? What sort of climate have these places? (19-6848.) Describe the dress and customs of the Spanish.

THE FRENCH IN NORTH AMERICA. (2-677-83.) Why did the French wish to have colonies in America? What sections did they settle? What occupations and trades did they carry on? Who were Marquette and Joliet? (18-6631-34.) Tell La Salle's story. (1-248, 250.)

CIVICS, 5TH GRADE

COURSE OF STUDY

1. HEALTH.
 - (a) Cleanliness of:
 1. Clothes.
 2. Body.
 3. Homes.
 4. Stores.
 5. Streets.
 - (b) Interest in clean markets.
Note which ones are clean and neat.
Notice those where food is covered or screened.
2. THRIFT.
 - (a) Health is thrift.
 - (b) Care of school books is thrift.
 - (c) Keeping public streets and roadsides clean is thrift.
 - (d) Spending money wisely, not foolishly, is thrift.
 - (e) To save a little of some thing every day is thrift.
3. COURTESY. True politeness is thinking of others first.

QUESTIONS

Name five ways in which you can make your town cleaner. Why do we say that we cannot be healthy if we are not clean? For what signs of cleanliness would you look in a store or market? What are wrong ways of caring for and displaying food?

What does the word thrift mean? (17-6361-62.) Give five ways in which you can practice thrift.

What does courtesy mean? What does the Scout Movement teach concerning it? Why do we say that a different word for *courtesy* is *unselfishness*? (12-4451-58.)

TESTS (HISTORY, 5TH GRADE)

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. Plymouth was settled (a) by the Puritans, (b) by the Dutch, (c) by men released from the debtors' prison in England, (d) by the Pilgrims.
2. The chief occupation of New Amsterdam was (a) farming, (b) fishing, (c) fur-trading, (d) shipping.
3. The French settled (a) along the St. Lawrence and the Great Lakes, (b) along the Pacific Coast, (c) in Florida.
4. Rhode Island was settled for (a) fur-trading, (b) as a refuge for escaped prisoners, (c) as a home for those who believed in religious freedom, (d) for tobacco raising.
5. The Cabots sailed under the flag (a) of England, (b) of Portugal, (c) of Holland.

FALSE-TRUE

Place a plus (+) before each statement that you consider correct.

Place a minus (—) before each one that you consider false.

1. The English claimed North America because of the discoveries of the Cabots.
2. Champlain made friends of all the Indians.
3. Sir Francis Drake settled the first colony in Virginia.
4. The Quakers treated the Indians with the greatest kindness.
5. The Puritans granted religious freedom to everyone in their colony.

GENERAL

1. Arrange these colonies in a column, with the reasons for settlement of each one placed next to it:

Colonies. 1. Plymouth, 2. New Amsterdam, 3. Jamestown, 4. Pennsylvania, 5. Maryland, 6. Rhode Island.

Reasons. Fur-trading; to make homes in the new land and thus claim it for England; for religious freedom; for a refuge for the persecuted.

2. Next to the name of each of these men place the discovery or exploration for which we remember him:

Balboa, Magellan, De Soto, Hudson, Cartier.

3. Next to the name of each of these men place the name of the colony which he led:

John Smith, William Bradford, Roger Williams, Lord Baltimore, William Penn.

4. On an outline map of North America show the sections claimed by the French, Dutch, English and Spanish. Mark with a cross any spots where friction among these countries is likely to develop.

5. Arrange these names in a list according to their importance. Place the one whose dis-

COURSE OF STUDY

coveries you consider had the most *far-reaching effect first*, the next one *second*, and so on. Be able to give your reasons.

Magellan, Hudson, Columbus, Champlain, Captain John Smith, De Soto, Balboa.

Remember that what makes a thing important are the results that come from it, so before you answer this question ask yourself, "What effect did this discovery have? What difference would it have made if it had never happened? What country claimed land because of it?" Then answer.

HISTORY, 6TH GRADE

Average Age, 11 to 12½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1. OUR HERITAGE FROM THE OLD WORLD.

(What does "heritage" mean?)

- (a) Primitive Man. (1-189-96; 5-1655-57; 9-3041, 3353; 10-3545-46; 6-1925-28.)

- (b) The Ancient World.

The story of:

Egypt. (3-807-21; 1-290-92, pictures in color, 293-95; 11-3977; 7-2486; 10-3546-48, 3550. See Index.) Babylon. (2-646-60; 14-5208-09. See Index.) Phoenicia. (1-83-84; 11-3910-12; 14-5042; pictures, 4-1431; 10-3546.) The Hebrews. (19-7155-58; 3-815-16, 818, pictures, 917; 15-5464.) The Persians. (3-910-18, map, 908.)

What we owe to the Greeks. (2-701-09; 3-1069-82; 12-4215-22. See Index.)

What we owe to the Romans. (4-1191-1200, pictures, 1201-08; 13-4812; 15-5346-48, pictures, 5351-56.)

Beginnings of Christianity. (2-575-78; 8-2843-45; 5-1862-63, 1865-66.)

Special Topics

The Rosetta Stone. (3-812, 814, 821; 10-3548.) Recent discoveries in Egyptian tombs. (3-818; 11-3874.) Write a description of the Acropolis. (2-705; 12-4216-17.) In your scrap book make a collection of pictures of Greek temples and statues. The Olympic Games. (12-4216, 4401; 3-1074.) Make a collection of Roman pictures. Read the story of Romulus and Remus. (4-1192.) Read the story of the Roman conquest of Great Britain. (4-1317-20.) Emperor Constantine. (4-1200; 2-578; 5-1691-92, 1858, 1866.) NOTE. You will often find letters placed next to a date, as 300 B.C. B.C. means before the com-

Describe the homes, clothing, weapons and food of primitive man. (8-3010; 1-189-92; 5-1655-57; 9-3041, 3353.) How did written language grow? (10-3545-46.) Why do we say that the Egyptians had a high type of civilization? (3-807-21.) Describe some of their temples. (14-5210-12, pictures, 5213-16.) Model a group of pyramids in your sand pile. (7-2604, pictures, 2606; 3-808-09.) What do we owe to the Egyptians? What country had the first code of law in the world? (2-652, picture, 651.) Who were the greatest sailors and traders of olden times? (1-83-84.) What especially do we owe to this people? (10-3546; 11-3912.) Where was Assyria? (2-647-50, 652-60.) Describe the palaces built by the Assyrians for their kings. (14-5209.) What debt do we owe to the Hebrews? (19-7156, 7157; 15-5464.) From what land did they spring? (19-7155; map, 3-908.) Who was Darius? (3-914.) Describe the life of the Spartans. (3-1072, 1074.) What is meant by the saying, "He lives like a Spartan"? What do we owe to Athens? (2-702-03, 706; 3-1080, picture, 1079.) What were the Olympic Games? (12-4401, 4216; 3-1074.) Name a great Grecian poet. (16-5747-48; 6-1983-86.) Who were Plato and Aristotle? (2-707-08.) Why does Greek civilization rank so high? (2-708.) What famous buildings do you know of that are modeled on Grecian lines? (Examples of Greek buildings, 15-5341-44, pictures, 5349-54; 3-1079.) Sum up the influence of Greece upon our life and country. Rome. (4-1191-1200; 15-5346-48.) Tell the story of the founding of Rome. Tell the story of Cincinnatus. (4-1193.) Of Horatius at the Bridge. (10-3639-42.) Why were the Romans called conquerors? What were some of the countries they conquered? Who were the Etruscans? What did the Romans learn from them? Where was Carthage? Why did Rome wish to conquer Carthage? (4-1194-96.) What did the Greeks teach the Romans? Who were some of the most famous Roman generals and leaders? (4-1361-68; 5-1859-66.) What led to Rome's fall? (4-1200.) What influence has Rome

COURSE OF STUDY

COURSE OF STUDY

ing of Christ. A.D. placed next to a date means Anno Domini—in the year of our Lord. (4-1316.)

Go back to your fourth grade history and review Clovis, Charlemagne, Alfred the Great.

Several years after the fall of the Roman Empire we find the nations of Modern Europe growing up in its place.

(c) Beginnings of Modern Europe.

The Making of the French.

(10-3429-34.)

The Making of the English. (4-1315-24, 1429-39; 5-1565-72.)

Life in the Middle Ages.

Special topics

How the common people lived.

(5-1720.) The Feudal System.

(4-1439.) Life in the castles:

the nobility. (English castles,

18-6489.) The Church in the

Middle Ages: One church to which everyone belonged. (8-

2843-50.) Work of the monks.

(13-4859; 2-582, pictures in

color, 477-80.) The Crusades.

(7-2583-89.) Their influence.

(10-3432.) Learn the meanings

of these words: Chivalry (stories about King Arthur and his

knights illustrating chivalry, 19-

6941-45; 16-5823-24; 17-6320-

23; 7-2460-61); joust; tourna-

ment; knight; serf; feudal;

guild; minstrel (17-6267; 1-56-

57). Richard the Lion-Hearted.

(5-1570; 7-2587-88.) Describe

a tournament. Describe the

dress and equipment of a knight

at this time. (Stories of King

Arthur with accompanying pic-

tures give information on this

topic. See *Chivalry* above.)

King John and the Barons:

Magna Carta (Great Charter).

(5-1571, picture, 1564.)

QUESTIONS

had upon our country? (Law, 13-4812; citizenship, road building, engineering, 15-5346-48.) What is meant by the letters B.C.? A.D.? (4-1316.) Where did Christianity originate? (4-1199.) How did it spread? (2-575-78; 8-2843-45.) What emperor granted freedom to the Christians? (2-578.) What tribes arose after the fall of the Roman Empire? (4-1200, picture, 1195; 11-3960.) Who were the Goths? The Vandals? Who were the Franks? (10-3429-30.) Where was the Frankish Empire? (10-3430; 11-3960.) Who were the Angles and Saxons? (4-1429.) Tell the story of the introduction of Christianity into Great Britain. (4-1430.) What troubles had Great Britain with the Danes? (4-1432-34.) From what country and direction did they come? What great English ruler made a treaty with the Danes? What other services did he do for his country? (4-1434.) Who were the Normans? How did they conquer England? (4-1436-39; 5-1565-66.) What effect had the Norman Conquest on the English nation? What years are covered by the period which we call the Middle Ages? Describe the life of the nobility during this time. Discuss their dress. (1-186; also pictures in connection with the King Arthur stories), castles (18-6489), ways of eating, furniture, the wars they carried on and their sports (Sport of Falconry, 10-3754). How did they travel? What do people mean when they say that the workingman can now have luxuries that a noble of the Middle Ages could never have enjoyed? Describe the life of the poor people during this time. (5-1720.) What were serfs? How was trade carried on at this time? (Example: Hanseatic League, 11-3963.) What was the feudal system? What did the lord of the castle do for those dependent upon him? What valuable work was done by the monks in the Middle Ages? (13-4859; 2-582, pictures in color, 477-80.) What were the Crusades? (7-2583-89.) What results had the Crusades? (10-3432.) What was the Magna Carta? (5-1571, picture, 1564.) Tell the story of its granting.

2. THE EUROPE THAT FOUND AMERICA.

The East and West.

Special topics

(Review 4th and 5th grades for information.)

Nations in power at this time.

What great nations had risen in Europe at the time of the discovery of America? With what countries was trade carried on? What were the chief trade routes from East to West? Who was Prince Henry the Navigator? (14-5184.) Why do we remember him? What effect had the invention of gun-

COURSE OF STUDY

Trade and trade routes. Need of new routes. New inventions. Printing. (15-5460; 9-3381-88.) Revival of Learning. (13-4798, 4800; 3-823-24, 1117-18.) Review the explorers and discoverers that you studied in the Fifth Grade. Review the settlements by different countries.

3. THE LATER COLONIAL PERIOD.

- (a) Conditions in England.
Charles the First and trouble with Parliament. (6-1974-78; 11-3845-47.)
Oliver Cromwell and Revolution. (6-1976-78; 11-3846-48.)
Colonization is checked for a time.
Charles the Second and Restoration. (6-1979-81.)
- (b) Settlement of the Carolinas. (2-553-54.)
- (c) Settlement of Georgia by James Oglethorpe. (2-554.)
- (d) The first American schools and colleges. (3-966-70.)
Harvard. (2-550; 12-4308.)
William and Mary. (12-4308.)
Summary of the resources of North America as available to the colonists. Northeastern colonies. (10-3401.)
Southern colonies. (13-4517-20; 2-545-46.)

Steps toward self-government

Types of government in the colonies. (2-543, 550.) Effect of soil and climate on occupations. (10-3401; 13-4517-20.) Effect in turn of occupations on unit of political government. (Ex. In New England, the town. In the South where a more rural population was found, the county became the unit of government.)

QUESTIONS

powder on the rule of the castles? To what do you think the invention of printing led? What is meant by the Revival of Learning? (13-4800; 3-823-24, 1117-18.) What colonies had been established in America by 1630? Tell where each one was located, by what country owned, and for what reason settled. (2-543-55.)

What grievances had people in England against Charles the First? (6-1974-78.) What rights did they demand? Who was Oliver Cromwell? (6-1976-78.) What effect had these troubles on colonization? When was colonization resumed? (6-1979-81.) Describe the settlement of the Carolinas. (2-553-54.) Of Georgia. (2-554.) Where were schools first begun in America? (3-966-70.) How early? Where and when were the first colleges founded? (12-4308.) What were the chief opportunities that North America presented to the colonists? (10-3401; 13-4517-20.) What is the difference between a colony with a charter and a proprietary colony? (2-543, 550.) Give examples of each. What government by the people existed in the colonies? (2-554.) What types of self-government did the thirteen colonies develop? What was the Mayflower Compact? (Picture, 7-2525.) When and where was the first colonial assembly in America? (2-546.) What effect had soil and climate on the unit of government developed?

CIVICS, 6TH GRADE

COURSE OF STUDY

Services done for us by our local and state community.

- 1. Schools. (17-6218; 15-5621-22; 19-7122.)
How financed and maintained?
Taxes. (13-4556.)
What does our state do for us in this connection?
What funds does the state supply?

QUESTIONS

What are taxes? (13-4554.) Why should we pay them promptly and cheerfully? (13-4553-56.) What services do we receive in return for the payment of taxes? Why could each man not do these services for himself? How is money raised for schools? (13-4556.) What is the part of the township? Of the school district? Of the state? Name some of the advantages brought into

COURSE OF STUDY

COURSE OF STUDY

2. Libraries. (17-6218; 15-5624, 5627-28.)
How maintained?
Funds.
3. Roads. (14-4895.)
How built?
How kept in condition?
4. Protection.
Local.
State.

QUESTIONS

a community by a library. What are the advantages of good roads? How are these built? How maintained? (14-4895.) What is a constable? What are his duties? What are state police? How is a city community protected? A rural community? (Fire, 9-3157-69.)

TESTS (HISTORY, 6TH GRADE)

COMPLETION

Fill in the blank spaces with the correct answers.

1. We owe the alphabet to the
2. Our heritage from Greece is, and
3. Great law-givers were the
4. We owe the Ten Commandments to the
5. The were the greatest traders and sailors of antiquity.
6. gave liberty to the Christians and made Christianity the state religion.
7. Learning was kept alive during the Middle Ages by
8. A.D. means
9. made a treaty with the Danes.
10. The Crusades were

FALSE-TRUE

If you agree with the statement place a plus (+) next to it.
If you disagree place a minus (—).

1. Newspapers were common during the Middle Ages.
2. The lord of the castle protected the serfs in return for their services.
3. The Venetians were great traders.
4. Richard the Lion-Hearted granted the Magna Charta.
5. Henry the Navigator was king of England.
6. The settlers in the thirteen original colonies developed resource and self-reliance in the New World.
7. Emigration to North America was checked during the reign of Queen Elizabeth.
8. Soil and climate have strong influence on the political life of the people.
9. The first school in America was established in Massachusetts in 1624.
10. North Carolina was settled by James Oglethorpe.

HISTORY, 7TH GRADE

Average Age, 12 to 13½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. THE STRUGGLE FOR CONTROL OF NORTH AMERICA. (3-777-84.)

Look at the map you made showing the colonies owned by different European nations.

- (a) Which two nations control the greatest part of North America?
(Wars in Europe at this time.)
- (b) Parts of North America controlled by the English. (2-543-55, 682; 3-777.)
 - 1. Reasons for settlement in this section.
 - 2. The Appalachian Barrier. Its effect: (Made English colonies stronger. Could not spread over too great area.)
- (c) Sections settled by the French. Reasons. (3-777-78.)
Followed natural gateways and water-routes.
- (d) The Great Valley.
 - 1. How reached.
 - 2. Passes through the mountains.
- (e) Types of colonies founded by the French and English. (3-777.)
- (f) War and the colonies.
 - 1. Indian warfare.
 - 2. French losses—Acadia, Louisburg, Newfoundland. (3-779.)
 - 3. How these wars unified the colonists and made them self-reliant.
- (g) Wars in Europe and their effect on the American situation. (3-778.)
- (h) The French and Indian War. (3-782.)
 - 1. Rival claims in the Ohio Valley. (3-780.)
 - 2. The Virginians and the French clash.
 - 3. Braddock's defeat. (3-780-82.)
 - 4. Washington's defense of the frontier.
 - 5. Fort Duquesne (Pittsburgh). (3-780.)
 - 6. Canada.
 - Capture of Louisburg. (3-779.)
 - Capture of Quebec (Wolfe and

QUESTIONS

What events caused Spain's power in North America to diminish? (5-1820; 14-5046.) Why was she not concerned in the final struggle with France and England for control? (2-543.) Which parts of North America were held by the English? (2-543-55, 682; 3-777.) What is meant by the Appalachian Barrier? (13-4518-20.) What effect had it on the development of the English colonies? What routes did the French follow in their explorations? (1-252; 2-677-80.) What differences do you find between the French and English colonies, in government, in occupations? (2-682; 3-777.) Which do you think were more self-reliant? In what colonial wars did the colonists engage? (3-777-84.) What part was played by the Indians in these wars? What effect had this warfare on the colonists? (4-1159.) (Unifying—gave them self-confidence and self-reliance.)

Between what nations in Europe was war being carried on at this time? (3-778.) What effect had this on the situation in America? What were the causes of the French and Indian War? (3-779-80.) Why is this war so named? Tell the story of the dispute over the Ohio Valley. (3-780.) What was the cause of Braddock's defeat? (3-780-82.) Where was Fort Duquesne? (3-780.) What city now stands there? Tell the story of the fighting in Canada, of Wolfe and Montcalm at the fall of Quebec. (3-782-84, picture, 776.) Why do they call this the battle that decided the future of a continent? What were the results of the French and Indian War? (3-784.) Which

COURSE OF STUDY

QUESTIONS

Montcalm). (3-780-82;
picture, 3-776.)

7. Results. (3-784.)

- (a) France loses control in America.
- (b) England's colonial empire extended.
- (c) Colonies more closely united.

2. LIFE IN THE COLONIES.

(3-965-76.)
Life and Homes.

- (a) In cities.
- (b) In the country.
 - 1. In the North.
 - 2. In the South (slavery).
- (c) Means of heating and lighting. (5-1698-1700.)
- (d) Means of travel.
- (e) Means of communication.
- (f) Manufactures in the colonies. (4-1158.)
- (g) Chief occupations.

3. SEPARATION FROM ENGLAND.

(6-2100-01; 4-1157-59.)

The change in English policy. (The colonists had been "let alone" for many years. This policy had left them free to develop independent ways of thinking and had made them more self-reliant.) The main background of the colonies was English.

Some rights of Englishmen.

- (a) The right to manage their own local affairs (town moots).
- (b) A representative form of government. (Simon de Montfort's Parliament, 5-1572.)
- (c) Taxes not to be levied unless voted for by representatives in Parliament. (Bill of Rights, 6-1681; 4-1160.)
- (d) Freedom of speech and elections. (Bill of Rights, 6-1681.)
- (e) No quartering of troops in times of peace.
The colonists brought with them these ideas.

4. OTHER THINGS WHICH MADE THE COLONISTS EVEN MORE INDEPENDENT IN THOUGHT AND NATURE.

- (a) The more independent and self-reliant would tend to emigrate in the search for greater liberty.
- (b) The long-continued "let alone" pol-

one of these results do you think had the most far-reaching effect?

Describe a home on the frontier in 1765. Where might the frontier have been located at this time? Describe the life on a plantation in the South. What means of lighting and heating were used? (5-1698.) Describe a colonial kitchen in New England. How was mail carried? What were the chief means of travel? (5-1698-1700.)

What change took place in England's treatment of her colonies after the French and Indian War? (4-1159.) What was the "let alone" policy? (4-1158-59.) What effect had it upon the colonists? What were some of the rights the colonists believed belonged to them as subjects of England? (6-2100; 4-1159-60.)

What factors had worked to develop a strong feeling of independence and self-reliance among the colonists? What effect had the colonial wars had upon the colonists? (4-1159.)

COURSE OF STUDY

QUESTIONS

icy. (Colonists had been obliged to make decisions and manage affairs for themselves.)

- (c) The difficulties which the colonists had met and overcome in the New World.

5. CAUSES FOR THE CHANGE IN ENGLISH POLICY.

- (a) Desire to increase revenues from the colonies. (4-1158-59.)
 (b) Debts from the French and Indian War which must be paid. (4-1159.)
 (c) Character of George III. (4-1162; 6-2100.)

6. SOME FEATURES OF THE NEW POLICY AND THEIR RESULTS.

- (a) Navigation Acts. Attempts to enforce them.
 (b) Stamp Act. (4-1159.) Stamp Act Congress.
 Resistance in the colonies. (4-1160.)
 Samuel Adams—Massachusetts.
 James Otis—Massachusetts.
 John Dickinson—Pennsylvania. (12-4450.)
 Patrick Henry—Virginia.
 Standing armies. Resistance.
 Boston Massacre. (4-1162; picture, 4-1160.)
 (c) The Townshend Acts. Repeal. (4-1162.)
 The duty on tea retained to show authority of the mother country to tax the colonists.
 Boston Tea Party. (4-1162.)
 Boston punished.
 Opposition in England to this policy. William Pitt.
 Committees of Correspondence.
 Minute Men.

7. FIRST CONTINENTAL CONGRESS, 1774. (4-1162.)

(Had no power to make laws, but made recommendations.)

- (a) Issued declaration setting forth grievances and the rights of the colonists.
 (b) Formed a boycott or general non-importation association against British goods.

(NOTE. Read 4-1157-74 for information necessary to answer questions on the Revolution.)

What were the causes of the change in England's policy toward the American colonies? (4-1158-59.) Why had England not encouraged manufactures in the colonies? Describe the forms of government in (a) Virginia (2-546), (b) Massachusetts (2-554), (c) Pennsylvania (2-552-53). To what extent did the colonists have representative government? What does "representative government" mean? Who levied taxes in the colonies? (4-1159.)

What were the Navigation Acts? When were they passed? When enforced? What was England's object in passing them? Show how these acts would affect the colonies. What was the Stamp Act? (4-1159.) How did the colonists respond to these laws? Name two prominent New England patriots who were active in resistance to England's attempts at oppression. (4-1163.) Name other leaders of opinion (a) in Virginia (4-1166), (b) in Pennsylvania (12-4447-50). What was the American reaction to the quartering of troops upon them? (4-1159.) What right of English subjects did this violate? What were the Townshend Acts? (4-1160-62.) Why was the duty on tea retained when the rest of the acts were repealed? (4-1162.) Who was William Pitt? What was his attitude on England's treatment of her colonies? What was the Boston Tea Party? (4-1162.) How was Boston punished for this act? What were committees of correspondence? Minute Men?

What was accomplished by the First Continental Congress? (4-1162.)

COURSE OF STUDY

8. BEGINNINGS OF THE REVOLUTION.

Lexington and Concord. (4-1163-64.) Remember that up to this time few if any Americans had even thought of separating from England. They were merely endeavoring to secure what they felt were their rights. The tide of opinion begins to change.

- (a) Washington, commander-in-chief. (4-1164.)
- (b) Bunker Hill.
- (c) Ethan Allen at Crown Point and Ticonderoga.
- (d) An attempt to the North. Arnold and Montgomery at Quebec.
- (e) Boston evacuated by the British.
- (f) Sentiment in America. Declaration of Independence. (4-1166; 20-7553-57.)
- (g) Second Continental Congress in session. (4-1164.)

9. THE GENERALSHIP OF GEORGE WASHINGTON. (4-1164-73.)

- (a) Difficulties. (3-1040.)
 1. Lack of money.
 2. Conspiracies. (4-1170.)
- (b) Times of Discouragement. (4-1168.)
- (c) Capture of New York by British. (4-1166.)
- (d) Washington's retreat. (4-1166, 1168.)
- (e) Trenton and Princeton. (4-1168.)
- (f) Capture of Philadelphia by British. (4-1168, 1170.)
- (g) Valley Forge. (4-1170.)
- (h) Tories. (4-1166.)
- (i) Services of Robert Morris.
- (j) Volunteers from Europe. Lafayette (4-1168), Steuben (4-1161), Kosciuszko (4-1161).
- (k) British plan to divide the colonies fails at Battle of Saratoga. (4-1166, 1168.)

Turning point of war
- (l) French aid. (4-1168, 1170.)
- (m) The American navy. (4-1170; 17-6325-28.)

John Paul Jones.
Commodore John Barry.
- (n) Benedict Arnold. (4-1172; 11-3996.)
- (o) Fighting in the South. Marion. (4-1170-71.)
- (p) Cornwallis surrenders at Yorktown. (4-1172.)

QUESTIONS

What was the "shot heard round the world"? (4-1174; 11-4032.) Tell the story of Lexington and Concord. (4-1163-64.) These were in reality very insignificant battles; why were they so important? What change began to take place in American opinion and feeling? (4-1164.) Recite the steps that show the colonists' preparations for war. What result had the Battle of Bunker Hill? Ticonderoga and Crown Point? Tell the story of the American invasion of Canada. (4-1164.) Who wrote the Declaration of Independence? (4-1166.) What great principle is laid down in this document?

What difficulties had Washington to surmount? (3-1040.) Who were the Tories? (4-1166.) Tell the story of the capture of New York. (4-1166.) If possible, name some local points, where fighting was carried on, that have commemorative tablets or monuments and describe the events connected with them. Who was Nathan Hale? (11-3995-96.) Describe Washington's retreat across New Jersey. (4-1168.) Why is this called the "time of discouragement"? What man rendered our country great financial services at this time? What foreigners gave valuable services to our army? What was the British plan to divide the colonies? At what battle was it defeated? (4-1168.) Why is this called the turning point of the Revolution? What country now came to the aid of America? (4-1170.) What conditions in Europe acted to help the Americans? (4-1170.) Describe the fighting done by the Americans at sea. (17-6325-28.) Who was John Paul Jones? Commodore John Barry? What blow did a once brave American inflict upon his country? (11-3996.) What commander was called the "Swamp Fox"? (4-1170.) Why? Tell how Cornwallis was trapped and forced to surrender at Yorktown. (4-1172.)

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

10. TREATY OF PEACE. (5-1695-96.)
 (a) John Adams.
 (b) John Jay.
 (c) Benjamin Franklin. (10-3487-88;
 12-4447-50.)

What prominent American negotiated the peace treaty? (5-1694-95.)

11. THE NEW NATION.

Fear of a new strong central government that might prove as tyrannical as the one just thrown off.
 Some plan of union and government must be worked out.

- (a) The Articles of Confederation.
 (5-1696-97.)

Weaknesses of these Articles.

1. No president with any power to enforce law.
2. Congress had no power. It could call upon the states to act but it could not compel obedience. (Ex. Could not raise men for the army, or money to pay debts. Could not regulate commerce or levy taxes.)
3. Each state was a law unto itself.
4. Congress consisted of only one house where each state large or small had equal vote.

- (b) Demands for a new and stronger plan of government.
- (c) Washington offered a crown.
 (5-1697.)

- (d) Ordinance of 1787. Slavery was forbidden in all territory northwest of the Ohio River.

The breakdown of the Confederation and formation of the Constitution.
 (5-1697-98.)

Other difficulties caused by the weak government.

1. Foreign countries put tariff on American goods and America could not retaliate.
2. Commerce between the states was in great confusion. (5-1697.)
3. Foreign countries had no respect for America.

Why were the Americans afraid of a new strong central government? Give reasons why they could not continue as they were, each colony governing itself. What plan of government was adopted? (5-1696-97.) Show wherein and why this new plan was a poor one. Name the weaknesses that made it so and explain in what way they were bad for the new nation. Cover these heads: (a) president, (b) powers of Congress, (c) taxes, (d) army, (e) commerce. What were some of the qualifications of voters? What classes could not vote? What action of Washington's shows what a great and far-seeing man he was? What one important piece of work was done by the government under the Articles of Confederation? What were its chief provisions? Make an outline map showing the location and extent of (a) the thirteen colonies (b) the Northwest Territory. Show the most important cities and the chief occupations. What were some other difficulties of the new nation? What was Shay's rebellion? (5-1697.) What did it illustrate?

12. MAKING THE FEDERAL CONSTITUTION.

- (a) Conferences to discuss trade and navigation.
- (b) The Constitutional Convention.
 Representatives.
- (c) Disputes, (1) between the large (5-1697) and small states, (2) between the commercial North and the agricultural South, (3) between those who

What was the first step toward making a new Constitution? What was the next move? How did the colonies respond to the call to the Constitutional Convention? (5-1697-98.) Name some of the most prominent delegates. What were some of the chief causes of dispute in the Constitutional Convention? What type of interests had the South? The North? What were the principal weaknesses of the Articles of Confed-

COURSE OF STUDY

wished to give great power to the masses and those who did not believe this to be right. Many leaders did not trust the common people but believed them to be dangerous.

QUESTIONS

eration? How did the Constitution correct these? (Name each weakness in the Articles and tell how the Constitution improved upon it.) (See Vol. 20 for text of Constitution.) What compromises were made in order to secure agreement to and adoption of the Constitution? Why is the time between 1783 and 1789 called the "Critical Period"? What period of years did the Revolution cover? Over what years did the period of colonial wars extend?

Differences between the Articles of Confederation and the Constitution

Articles of Confederation

1. There was no power to enforce laws.
2. Congress could only ask states to contribute their share toward expenses.
3. Congress could not raise armies.
4. Congress was composed of only one house.
5. No judicial department.

Constitution

1. There was an executive to enforce the laws.
2. Congress could levy and collect taxes without asking aid from state governments.
3. Congress could raise and support armies and naval force.
4. Congress composed of two houses which could regulate trade with foreign countries and between states.
5. Supreme Court established.

Adoption of the Constitution. (5-1698.) Washington the first president. (5-1698.)

CIVICS, 7TH GRADE

COURSE OF STUDY

Meaning of "No taxation without representation." (4-1159-60.) Meaning of the word "democracy" as employed in the phrase "The United States a *democracy*." (5-1788.) Equal opportunity *politically, socially or educationally*? Representation in our state government and in our federal government. (5-1788-89.) The system of two houses. (5-1788-89.) Why installed? (5-1697.) The importance of education in a democracy. Qualifications of a voter. (6-2093.) The duties of a voter. (6-2093.) Balance of representation in federal and state government. How one may be a citizen and not a voter. (Those under 21.) Their privileges and duties. (19-7185-86.) Services rendered by the state government in education and health protection. Services rendered by the federal government under the same heads.

QUESTIONS

What is meant by the saying "No taxation without representation"? (4-1159.) What is meant by a democracy? (5-1788.) What is meant by political equality? When our country first began had everyone political equality? What difference between the qualifications for a voter in Washington's time and now? (See Vol. 20 for text of Constitution.) Why do we consider it important that the citizens of a democracy should be intelligent? What bearing would this have on education? What are the duties of a voter? (6-2093.) How is the balance of representation kept in Congress between the states having a small population and those having a large one? (5-1788-89.) Pupils are not voters, but they are citizens. What is the difference? What are the rights of a citizen? (19-7185-86.) What does your federal government do for you (a) in education, (b) in protection of health? What does your state government do for you in these things? What duties do you owe in return?

TESTS (HISTORY, 7TH GRADE)

JUDGMENT

Next to each statement place the letter of the answer which you think *best* completes it.

1. The French settled where they did in North America because (a) they liked the colder climates, (b) they followed the natural waterways and gateways, (c) they wanted to keep away from the English.
2. The English colonies had the advantage over the French in strength of growth because (a) they were near the ocean, (b) they had many short, powerful rivers, (c) the Appalachian barrier kept them from spreading out thinly over an extensive area.
3. The Battle of Quebec was important because (a) of the death of Wolfe and Montcalm, (b) it taught the Indians a lesson, (c) it decided what nation was to rule in North America.
4. The colonists rebelled against England because (a) of her long, cruel treatment of them, (b) they did not like the idea of being governed by another country, (c) they would not tolerate the idea of taxation without representation.
5. The Battle of Bunker Hill was important because (a) it was a great British defeat, (b) it taught the Americans that they could successfully resist the British, (c) it caused the British to lose a great number of men.

FALSE-TRUE

Put a plus (+) before every statement which you believe is correct; a minus (—) before every one you consider incorrect.

1. From the very beginning the colonists were determined to become independent.
2. England had not interfered with the colonies until about 1760.
3. England encouraged all kinds of manufactures in the colonies.
4. The Battle of Saratoga was the turning point in the American Revolution.
5. The end of the Revolution found the colonies closely united and in sympathy with each other.
6. France came to America's aid at the beginning of the Revolutionary War.
7. Washington was indignant at a letter offering him a crown.
8. The Ordinance of 1787 was the first piece of legislation completed under the new Constitution.
9. At the time of the adoption of the Constitution only about one-fourth of the white men in the country took part in the elections.
10. Washington took the oath of office as president in the spring of 1789 in New York City.

HISTORY, 8TH GRADE

Average Age, 13 to 14½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1 PROBLEMS THAT AROSE WITH THE NEW PLAN OF GOVERNMENT.

- (a) The choosing of a cabinet. (5-1699, 1790.)
- (b) How the problem of the payment of debts was solved by Hamilton's Measures. (5-1700; 10-3488-89.)
 - 1. What the measures were.
 - Moving the capital to Washington. (5-1533-44.)
 - United States Bank.
 - Protective tariff. (5-1700.)
 - 2. How the question of states' rights arose through opposition to some of the measures. (Whisky Rebellion, 5-1700; 11-3937.)
- (c) How two great political parties arose out of the question, "Shall the federal or state government be supreme?" (5-1702.)
 - 1. Hamilton, leader of Federalists.
 - 2. Jefferson, leader of Anti-Federalists.

2. HOW AMERICA BECAME INVOLVED IN FOREIGN AFFAIRS.

- (a) The United States has trouble with England. (5-1700-02; 17-6328-29.)
 - 1. How England seized and sacked American vessels.
 - 2. Why Jay's treaty only postponed settlement of the question.
- (b) How the United States became involved in trouble with France. (5-1702; 17-6328.)
 - 1. How Washington's decision on neutrality was accepted. (5-1702.)
(Note the influence it has had in recent American affairs with Europe.)
 - 2. How different opinions led to the Alien and Sedition Laws. (5-1702.)
 - Special topic*
 - The French Revolution. (6-2127-34.)
- (c) Blockade by Western Europe. (5-1703.)
American protests.

After the adoption of the Constitution and the choice of Washington as president what other problems confronted the country? (5-1698-1700.) What part did Hamilton play in setting the new nation on a sound financial basis? (5-1700; 10-3488-89.) What were the measures advocated by him? Who opposed these measures and why? What was the Whisky Rebellion? (5-1700; 11-3937.) What two great parties arose? (5-1702.) Who were their leaders? What were the principles of both parties?

What troubles drew America into foreign affairs? (5-1700-02; 17-6328-29.) What chief grievances existed between this country and England? (5-1702-03.) What effect had Jay's treaty upon the situation? How was the treaty received? What difficulty arose between the United States and France? What far-reaching effect had Washington's decision on our national policy? Tell something of the troubles which now shook France. (6-2127-34.) Why were many people in this country inclined to aid France? What were the Alien and Sedition Laws? (5-1702.) What unfriendly action toward this country was taken by both France and England? What effect had these events on the commerce of the young country? What were the causes of the War of 1812? (5-1704.) What were the chief events of the war (a) on land (5-1704-07), (b) on the water? (17-6329-32.) What discouraging reverses on land had the Americans? With what do you associate these names: John Quincy Adams (10-3489-90), Perry (5-1704; 17-6330-31), Jefferson (3-1042-43),

COURSE OF STUDY

COURSE OF STUDY

- (d) War of 1812. (5-1704-07.)
1. Causes.
 2. Chief events.
 - (a) On land.
 - (b) On sea. (17-6329-32.)
 3. Results: Chiefly economic; increase in manufacturing. (5-1706.)

Make a map showing the extent of the United States at this time with the land involved in the claims of the states.

Draw a map showing the location of the chief events of the War of 1812 on land and sea.

- (e) The Spanish-American Republics. (19-6974-83, 7033-50, 7131-42.)
1. Independence of South American republics.
 2. The Holy Alliance.
 3. The Monroe Doctrine. (6-1914; 11-3938-39.)

3. DOMESTIC AFFAIRS.

- (a) Protective Tariff. (13-4555.)
- What it means.
- Why the North desired it and the South did not.
- Effect of the War of 1812. (5-1706.)
- Industries in the North—in the South.
- Tariff of Abominations. (11-3939.)
- Opposition of the South.
- (b) Jacksonian Democracy. (11-3939; 6-1916.)
- Andrew Jackson, the people's president.
- The Spoils System: Its results.
- Doctrine of Nullification.
- Jackson's firmness.
- Jackson and the United States Bank.
- Panic of 1837.
- Growth of political democracy.
- More people gain right to vote.
- Development of popular education
- Horace Mann. (14-5254.)
- DeWitt Clinton. (13-4882-86; picture, 5-1694.)
- Mary Lyon. (14-5270.)
- Increase of secondary schools and colleges.
- Growth of newspapers and magazines.

4. HOW THE YOUNG NATION GREW LARGER.

- (a) The Louisiana Territory. (5-1702-03; 11-3938.)

QUESTIONS

Gallatin (10-3489), Madison (11-3938), Jackson (3-1043-45; 5-1705, 1706-07). Why was the War of 1812 unpopular in New England? (5-1705-06.) What chain of events led to the Monroe Doctrine? (6-1914.) What was the sentiment expressed in this message? (11-3938-39.) What far-reaching effects has it had?

What does "protective tariff" mean? (13-4555.) Why and when was it first felt to be necessary? Why did the North favor it and the South oppose it? (11-3939.) What was the Tariff of Abominations? Why was Andrew Jackson called "the people's president"? (6-1916.) What is meant by nullification? (11-3939.) How did Jackson handle the situation that arose? What was the Spoils System? What effect had it upon office-holders and politics? Why did Jackson so firmly oppose the United States Bank? In what panic did the destruction of the bank result? What things show an increase in democracy during the period you have just covered? Who were some of the leaders in the movement for education?

(NOTE: The Spoils System is a practice introduced by Andrew Jackson whereby all government office-holders who hold their positions by virtue of appointment are removed when there is a change of the party in power and their places are filled by members of the new party in control. Of late this system has been somewhat done away with by the Civil Service, by which most government positions are filled by competitive examination without regard to party allegiance.)

What had Napoleon to do with the increase in territory of the United States? (5-1702-03.) Draw a map showing the extent of the land involved in the Louisiana Purchase.

COURSE OF STUDY

QUESTIONS

Napoleon.

The United States buys the territory. Lewis and Clark explore it and reach the Pacific. (5-1703; 18-6426.)

- (b) The Florida Purchase. (6-1910.)
Andrew Jackson's part in it.
- (c) The older states surrender their claims to the western lands. (6-1908.)
- (d) The Mexican Cession. (6-1916.)
General Samuel Houston.
Texas.
- (e) The pioneers. (6-1905-10.)
Gateways and barriers to the West.
The Cumberland or National Road.
The Erie Canal. (6-1914;
13-4881-88.)
New states added to the Union.
Kit Carson. (18-6425.)
Daniel Boone. (6-1906, 2189-95.)
James Robertson. (6-1906, 1907,
2196-97.)
- (f) The Oregon Dispute. (6-1918.)
"Fifty-four Forty or Fight."
- (g) California and the Discovery of Gold.
(6-1921-22.)
Its effect on the West.
The Santa Fé Route.
- (h) The Mormons and Salt Lake.
(6-1920-22.)

5. THE MEXICAN WAR. (6-1918-20.)

- (a) Causes.
- (b) Chief events.
- (c) Results.
On a map of the United States and Mexico show the locality affected by this war.

6. THE GREAT CONFLICT.

- (a) Introduction of slavery into the United States. (2-546.)
- (b) Development of slavery in the North. 6-1912.)
Died out because not economically valuable.
Development in the South.
Flourished in cotton-raising districts.
- (c) Influence of invention of cotton-gin. (6-1912.)
- (d) Slavery situation in 1820.
(Equal number of slave and free states.)
Desire of both to gain lead.
- (e) Legislation concerning slavery.
Ordinance of 1787.

Indicate the states that were later made from this territory. Trace the journey of Lewis and Clark. (5-1703; 18-6426.) Tell their story. How was Florida added to the United States? (6-1910.) What adjustment was made of the "western claims" of the states? (6-1908.) What and how much territory was involved in the Mexican Cession? (6-1916.) Describe the means by which pioneers traveled toward the West. (6-1905-10.) What were some of the routes they followed? What was meant by "Fifty-four Forty or Fight"? (6-1918.) What was the outcome? What discovery in California hastened the movement toward the West? (6-1921-22.) What people settled Salt Lake City? (6-1920-22.) How did they make a desert land fertile? What do the names Daniel Boone (6-1906, 2189-95), Kit Carson (18-6425) mean to you?

What were the causes of the Mexican War? (6-1918-20.) What were the most important battles? Tell the story of Scott's campaign. What were the results of this war?

When was slavery introduced into America? (2-546.) How? Why did slavery become so powerful in the South and not in the North? (6-1912.) What influence had the invention of the cotton-gin upon slavery? (6-1912.) What situation existed in 1820 in regard to slavery? What important pieces of legislation were passed in the effort to solve the slavery problem? (6-1914.) Who were Henry Clay (10-3490, 3492), John C. Calhoun (10-3492), Daniel Webster (10-3492, 3494)? For what issues did they stand? What was "squatter sovereignty"? (7-2429.) What question was raised at each addition of territory? (7-2428.) What part did William Lloyd Garrison play in the anti-slavery agitation? (7-2429; 11-3939.) What was an aboli-

COURSE OF STUDY

COURSE OF STUDY

- Missouri Compromise, 1820.
(6-1914.)
Henry Clay. (10-3490, 3492.)
John C. Calhoun. (10-3492.)
Daniel Webster. (10-3492, 3494.)
- (f) Each addition of territory meant renewed controversy over whether it should come in as a free or slave state. (7-2427-28.)
Growing feeling.
Fugitive Slave Law. (7-2428.)
William Lloyd Garrison.
(7-2429; 11-3939.)
Kansas Nebraska Act.
(7-2429.)
John Brown's Raid. (7-2430.)
Influence of "Uncle Tom's Cabin." (7-2429.)
- (g) Election of Lincoln. (3-1047; 7-2430-32.)
Secession of Southern states.
Influence of States' Rights.
Fort Sumter fired upon.
- (h) The Civil War. (7-2432-44.)
1. Advantages possessed by the North.
Nearly all manufacturing establishments were located in the North.
Greater wealth.
Greater male population.
 2. Advantages possessed by the South.
Better prepared for immediate conflict.
Had many capable and experienced generals.
 3. Northern objectives.
Splitting the Confederacy by a drive down the Mississippi.
Cutting off the supplies of the Confederacy by a blockade of the southern ports.
Capture of the capital of the Confederacy, Richmond.
Saving the border states for the Union by early occupation by federal troops.
 4. North on the offensive.
South on the defensive.
 5. The Crisis. The great peril—disunion.
 6. First Years of the War.
(a) The northern blockade of southern ports.
The Alabama incident.
Blockade runners.

QUESTIONS

tionist? (7-2428.) What had Mrs. Harriet Beecher Stowe to do with slavery and the Civil War? (7-2429.) What was the Kansas-Nebraska Act? (7-2429.) What effect had John Brown's raid upon public feeling? (7-2430.) What were the Lincoln-Douglas debates? (3-1046-47.) What was the doctrine of States Rights? What events precipitated war? (7-2430-32.) What advantages were possessed by the North? By the South? (7-2432.) What were the chief objectives of the North? Draw a map showing conditions at the beginning of the Civil War. Indicate free and slave states. Show the principal southern seaports, the southern and northern capitals, and the Mississippi River.

(NOTE. Read 7-2432-44 for information necessary to answer all the following questions on the Civil War and Reconstruction. Life of Abraham Lincoln 3-1045-50; 11-3942.)

What was the greatest danger that threatened the Union? What success had the northern plan to blockade all southern ports? What made it difficult to carry out this aim? What were the effects of the blockade on the Confederacy? What was the Alabama incident? Tell the story of the encounter of the Monitor and the Merrimac. What results had this battle? What was the result of the attempt to capture Richmond? What did Grant accomplish on the Mississippi? Describe Farragut's success at New Orleans. What was the Emancipation Proclamation? What were its effects? What was the decisive battle of the war? Tell the story of Vicksburg's capture. What events led to the defeat of the Confederacy? What was Sherman's march to the sea? Who defended Richmond gallantly? With what general do we associate Shenandoah? Why? Where did the final surrender of the Confederacy take place? What terrible blow fell upon the country? What unfortunate results had this event? Describe the condition of the South at the close of the war. What were some of the chief problems of the Reconstruction Period? What unhappy situation arose in Congress? Who were carpet-baggers? How were these troubles finally ended?

COURSE OF STUDY

QUESTIONS

- Effects of the blockade on the Confederacy.
- Monitor and Merrimac.
- (b) Northern plan of war on land.
- To capture Richmond.
- McClellan's Peninsular Campaign fails.
- To divide the Confederacy at the Mississippi.
- Grant takes Forts Henry and Donelson.
- Farragut captures New Orleans.
- Emancipation Proclamation.
- Its effect at home and abroad.

7. The Turning Point.

- Failure of Union Army plans.
- Pope.
- Lee at Antietam.
- Gettysburg. Decisive battle.
- Capture of Vicksburg.
- Chattanooga.

8. Defeat of the Confederacy.

- Sherman's march.
- Grant in command of all armies.
- Richmond defended by Lee.
- Sheridan in the Shenandoah.
- Surrender of Lee at Appomattox.
- Disbanding of the armies.
- Lincoln assassinated.
- Cost of the war.

9. Reconstruction problems.

- The Constitutional amendments.
- The quarrel between the President and Congress.
- Carpet-bag government.
- Political rights restored to southern leaders.
- Troops removed. (President Hayes.) (11-3943.)

7. RAPID GROWTH AND DEVELOPMENT OF THE NEW UNION.

Grant to Coolidge. (11-3943-50; 8-2669-74.)

Effect of inventions on transportation and industry.

(a) Transportation.

1. Railroads. (5-1618; 2-405-420.)
First road, the Union Pacific. (18-6432.)

Rapid increase of number of railroads in the United States.

Effect on Western Immigration.

2. Steamboat and steamship. (17-6397-6408.)

Trace the history of the development of transportation on land from the days of primitive man up to the present. What was the first railroad built across the United States? When? (18-6432.) What effect had the rapid increase in the building of railroads upon western immigration? Trace the history of the development of transportation on water from the log and dugout canoe up to the ocean-liner. (11-3909-20, 4086-88; 17-6397-6408; 12-4415-33.) In what various ways by land and water did pioneers cross the country? What improvements have been made in agricultural implements? (19-7209-11.) Who were the following? For what are they famous?

COURSE OF STUDY

COURSE OF STUDY

3. Panama Canal. (1-360-67.)
Review the history of transportation in the history of the means of travel used by the pioneers.
 - (b) Improvement in methods of agriculture and industry.
 1. Agriculture. (19-7209-11.)
 - Plow. From the crude, primitive crotched stick to the gang plow.
 - Harvester. McCormick Reaper. Combined reaper and thresher.
 - Present farm problems. Distribution.
 2. Industry.
 - Importance of the steam engine. James Watt. (5-1612.)
 - From the spinning-wheel to the power loom.
 - The sewing-machine. Elias Howe. (19-7213.)
 - Improved processes in the steel industry. Bessemer. (19-7207; 6-1939.)
 - (c) Improvement in methods of communication.
 - Telegraph. Morse. (17-6238.)
 - Telephone. Bell. (17-6242-44.)
 - Atlantic Cable. Field. (12-4293-94, 4296.)
 - Wireless. Marconi. (4-1254; 17-6247.)
 - (d) Increase in commerce and growth of cities.
-
8. FURTHER TERRITORIAL GROWTH. (10-3582-96.)
 - (a) Purchase of Alaska. (10-3583-84; 16-5789-95.)
 - (b) The Philippines.
 - (c) Porto Rico.
 - (d) Hawaii.
 - (e) Guam, Virgin Islands, American Samoa.
 9. THE UNITED STATES AS A WORLD POWER.
The world grows smaller. The United States brought constantly into contact with other nations because improved methods of communication lessen distances.
 - (a) The Venezuela Affair. (11-3944.)
 - (b) The Spanish-American War. (11-3944; 8-2672.)
Causes, results.

QUESTIONS

James Watt (5-1612), Cyrus McCormick (19-7210), Elias Howe (19-7213), Eli Whitney (19-7205; 6-1912), Sir Henry Bessemer (19-7207; 6-1939), Morse (17-6238), Bell (17-6242-44), Field (12-4293-94, 4296), Marconi (4-1254; 17-6247)? Contrast the means used to send news in Washington's time with that of the present. (5-1698.) How was woolen cloth woven in colonial times? How is it done to-day? (15-5585-88.) What effects have these inventions had upon our national life and growth?

What territorial additions have been made to the United States during the last sixty years? By what means was each one acquired? (10-3582-96.)

Why do we say that the "world grows smaller"? What was the Venezuela affair? How was it adjusted? (11-3944.) What were the causes of the Spanish-American War? (11-3944.) The results? (8-2672.) How was the United States brought into affairs of the East? What was the Boxer Rebellion? (2-433.) What use was made of the indemnity granted to the United States? Who was John Hay? What part did the United States play in the Russo-

HISTORY, 8th GRADE

COURSE OF STUDY

- (c) The United States in affairs of the East.
Boxer Rebellion. (2-433.)
Indemnity used for Chinese students in America.
The Russo-Japanese Treaty. (8-2672; 2-566.)
- (d) The World War. (8-2672-74.)
Results.
League of Nations.
World Court.

10. INTERNAL PROBLEMS.

- (a) Tariff Revision. (11-3937-50.)
- (b) Income Tax. (13-4555.)
- (c) Postal Savings Banks.
- (d) Parcel Post.
- (e) Trusts. Anti-Trust Laws.
- (f) Federal Reserve.
- (g) Conservation Movement.
Theodore Roosevelt. (11-3949; 19-7196-98.)
- (h) Immigration.
History of Immigration. (9-3218-20.)
Present problems. (12-4152.)
The Quota Law. (11-3950.)
- (i) Labor.
History of its organization.
Present problems. Strikes.
- (j) Suffrage. Now universal.
- (k) Civil Service Reforms. (19-7196.)
- (l) Education. State and federal aid. (9-3220.)

QUESTIONS

Japanese treaty? (8-2672; 2-566.) How was the United States brought into the World War? (8-2672.) What is the League of Nations? (8-2674.) What is our standing in relation to the League? What are some of the problems that now confront the League?

Make out a summary showing the story of tariff in the United States. (11-3937-50.) What is "tariff for revenue only"? (13-4555.) What is the Income Tax? (13-4555.) When was it first imposed? (11-3949.) Visit your nearest post office and learn details of the Postal Savings plan. Of the Parcel Post. When were these governmental services inaugurated? How did the great corporations or trusts rise to power? What legislation has been passed in the attempt to control them? What is the Federal Reserve? What is the Conservation Movement? With what president's name do we associate it? (11-3949; 19-7196-98.) What is one of our great natural resources that it aims to protect? (8-2803-10.) Trace the history of immigration from colonial days to the present. (9-3218-20; 12-4152.) What are some of the present-day immigration problems confronting the United States? (12-4152.) What factors led to the organization of labor? (7-2294.) What are some of the present labor problems? Are strikes an economical way of settling labor disputes? What other means might be employed? Look up the last four amendments to the Constitution. (Vol. 20-7578-79.) Tell the object of each one. What Civil Service reforms have been instituted?

CIVICS, 8TH GRADE

COURSE OF STUDY

1. SERVICES GIVEN US BY OUR GOVERNMENT.

- (a) Public Regulation of Work.
Why necessary (bad factory conditions affecting both worker and product).
Reasons for special legislation (protection of health, morals, etc.).

QUESTIONS

Why is it desirable to regulate working conditions? What evils resulted when this was not done? (7-2294.) What duty does the government owe the workers within its borders? What part does the national government take in the regulation of work? The state government? What activities fall within the duties of the Department of

COURSE OF STUDY

COURSE OF STUDY

- Federal activity. (Department of Labor.)
State activity.
- (b) Regulation of Commerce.
Why necessary?
How carried out?
- (c) Guarding Public Health.
At ports.
In food.
- (d) Protecting Public Safety and Well-being.
By excluding undesirable characters.
By regulation of mails. (8-2658.)
By apprehending offenders against federal laws.
2. KINDS OF LAW.
- (a) Constitution—Fundamental principles.
- (b) Statutes—Laws in detail.
- (c) Law-making bodies.
In the nation.
In the state.
- (d) How laws are made.
- (e) How the Constitution is amended.
All this has to do with the Legislative branch of our government.
In every phase of government whether national, state or local, we find three departments—Executive, Legislative and Judicial. Trace each one in the nation, the state, and in your local community.
3. FINANCING OF THE NATIONAL, STATE AND LOCAL GOVERNMENT.
- (a) Sources of revenue.
- (b) Department of the Treasury.

QUESTIONS

Labor? (5-1792.) How does the federal government protect the health of the people of the United States? What are pure food laws? What classes of people may now enter the United States? What control is exercised over the mails? (8-2658.) Why?

How the United States is governed. (5-1787-93; Constitution, Vol. 20.) What type of law is embodied in the Constitution? What are statutes? What are the law-making bodies of the state? Of the nation? Tell the story of a bill that becomes a law. How is the Constitution amended? What name is given the law-making branch of the government? What other branches are there? Show how these are found in the national, state and local government. What is the power of veto? Who has this power? Who is the chief executive of the nation? Of the state? Of your locality? What are the different cabinet positions? What are the functions of each of these departments? What services do they render to the people of the United States? Why are courts necessary? What is the supreme law of the land? What questions come before this body? What are the various types of city government? (See Index under municipal government.)

What are taxes? (13-4553-56.) How raised? What taxes are imposed by the federal government? By the state? By your local government? How are these assets collected and administered.

For General Articles on Civics, see Vol. 20-7597-98.

Additional References:

How a Great City Gets Its Water Supply. (14-5055-60.)
Modern Fire Fighting. (9-3157-69.)
What a Great City Does for Children. (15-5621-28.)
How Garden Cities Differ from Other Cities. (7-2612.)
The Work of Forest Rangers. (8-2803-10.)

TESTS (HISTORY, 8TH GRADE)

FALSE-TRUE

Place a plus (+) before those statements which you consider correct.

Place a minus (—) before those which you consider untrue.

1. Thomas Jefferson's plans placed the United States upon a sound financial basis.
2. Two great political parties arose out of the discussion as to America's conduct in foreign affairs.
3. The Whisky Rebellion was caused by opposition to the placing of taxes by the government.
4. Washington was made unpopular by his stand on French neutrality and the Jay treaty.
5. During the War of 1812 the United States had many brilliant successes on land but met with great naval defeats.
6. The War of 1812 was highly unpopular in the South but met with great favor in New England.
7. A protective tariff is a tariff for revenue only.
8. In 1820 there were in the Union eleven free states and eleven slave states.
9. The invention of the cotton-gin greatly increased slavery.
10. "Squatter sovereignty" meant that the residents of a new state or territory should decide for themselves whether their state should be slave or free.

JUDGMENT

Next to each of these statements place the letter corresponding to the answer which you think best completes it.

1. The acquisition of territory between the years 1820-60 was important (a) because the country needed more land, (b) because the great number of immigrants needed homes, (c) because it meant that either the slavery or anti-slavery party would be strengthened.
2. The North wished to blockade the southern ports because (a) they would thus be able to shut off supplies from the enemy, (b) they wished the British to sell to them instead of to the South, (c) they did not wish the English to carry news to the South.
3. The most serious issue at stake in the Civil War was (a) the freeing of slaves, (b) the preservation of the Union, (c) "states' rights."
4. The greatest blow to the South at the end of the war was (a) "carpet-bagger rule," (b) the death of Lincoln, (c) feeling in the northern states.
5. Western immigration was most increased by (a) the building of railroads, (b) the discovery of gold, (c) the giving of free lands.

GENERAL

1. Arrange these events in the order of what you consider their greatest importance to the history of the United States:
(a) Introduction of slavery into Virginia, (b) discovery of gold in California, (c) Mexican War, (d) introduction of the Spoils System, (e) Monroe Doctrine.
2. Draw a map of the United States. On it indicate the chief objectives and campaigns of the North and South during the Civil War.

SUMMARY OF HISTORY OUTLINES

FOURTH GRADE.

The First American, the Indian.
Some of Our Country's Heroes.
Customs of Dress, Travel, Homes, Newspapers and Schools of the Times.
Some Great Leaders in the World's History in Olden Times.
How the Movement for the Discovery of America Began.

FIFTH GRADE.

Exploration and Discovery.
Beginning of Colonization.
Some Early Colonies and Their Leaders.

SIXTH GRADE.

Our Heritage from the Old World.
Primitive Man.
The Ancient World.
 Egypt.
 Babylon.
 Phœnicia.
 The Hebrews.
 The Persians.
 The Greeks.
 The Romans.
 Beginning of Christianity.
Beginning of Modern Europe.
Life in the Middle Ages.
The Europe That Found America.
The Later Colonial Period.
 Conditions in England at the Time.
 Steps Toward Self-Government.

SEVENTH GRADE.

The Struggle for Control of North America.
French and Indian War.
Life in the Colonies.
Separation from England.
 Rights of Englishmen.
 Causes of the Revolution.
 The Revolutionary War.
The New Nation.
Articles of Confederation.
Breakdown of the Articles and Formation of the Constitution.

EIGHTH GRADE.

Problems That Confronted the New Nation.
The Cabinet.
Financial Measures.
Rise of Political Parties.
How America Became Involved in Foreign Affairs.
 War of 1812.
 Monroe Doctrine.
Mexican War.
Domestic Affairs. Tariff.
Expansion.
Slavery.
The Great Struggle—The Civil War.
From the Close of the Civil War to the Present.
Present-day Problems.

LITERATURE, 1ST GRADE

Average Age, 6 to 7½

Stories suitable for reading or telling to children: folk tales, nursery stories, stories of animal life, and stories of children, such as:

The Three Bears. (16-5825.)
Little Red Riding Hood. (18-6474.)
Hop-O'-My-Thumb. (17-6317-19.)
Puss in Boots. (10-3441.)
Three Little Pigs. (1-145.)

For other suitable stories see Fairy Stories (20-7693-95.)

Poems that may be learned are:

What Does Little Birdie Say? (3-848.)
Twinkle, Twinkle, Little Star. (3-1138.)
The North Wind Doth Blow. (3-1138.)
Ding Dong Bell. (11-4120.)

Other poems that may be read to children are:

Shut-Eye Train. (9-3108.)—Eugene Field. (13-4819.)
Robin Red-Breast. (1-324.)—Allingham.
Foot Soldiers. (11-4111.)—Tabb. (13-4815.)
If Wishes Were Horses. (10-3743.)
Music Song. (3-847.)—Blake. (12-4228.)

For other poems see Little Verses for Little People (20-7683-86) and Mother Goose Rhymes (20-7686-87.)

LITERATURE, 2ND GRADE

Average Age, 7 to 8½

Stories suitable for reading or telling to children:

Hansel and Gretel. (6-1965.)
The Sleeping Beauty. (19-7006-07.)
The History of Tom Thumb. (18-6611-12.)
Rumpelstiltskin. (11-3981.)

For other suitable stories see Fairy Stories (20-7693-95.)

Poems that may be learned:

My Shadow. (1-101.)—Stevenson. (8-2868-69.)
The Rock-a-By Lady. (18-6469.)—Field. (13-4819.)
All Things Bright and Beautiful. (12-4273.)—Alexander. (12-4437.)
Answer to a Child's Question. (1-324.)—Coleridge. (7-2353-58.)
Little Lamb. (2-606.)—Blake. (12-4228.)
The Wind and The Moon. (16-5711.)—MacDonald. (11-3897; 9-3199.)

Other poems that may be read to children are:

The Baby. (2-486.)—MacDonald.
The Moon. (7-2364.)—Follen.
The Butterfly's Ball. (3-1008.)—Roscoe.
I Had a Dove. (3-1142.)—Keats. (7-2492-93.)

For other poems see Little Verses for Little People (20-7683-86) and Mother Goose Rhymes (20-7686-87.)

LITERATURE, 3RD GRADE

Average Age, 8 to 9½

Stories suitable for children to read are:

- The Discontented Fir Tree. (15-5323.)
- The Discontented Pendulum. (12-4198.)
- Æsop's Fables. (See Index under Æsop.)
- The Hare and the Tortoise. (2-539.)
- The Fox and the Grapes. (11-3986.)
- The Ugly Duckling. (17-6096.)

For other suitable stories see Fables and Proverbs (20-7697) and Stories about Men and Women (20-7697-98).

Poems for the year are:

- Where the Bee Sucks. (3-986.)—Shakespeare. (2-722-24.)
- America. (17-6251.)
- Trees. (12-4271.)—Joyce Kilmer. (17-6394-95.)
- Travel. (3-1136-37.)—Stevenson. (8-2868-69.)

For other poems by these authors see Poetry Index under name of author.

Find out who each one of these poets was, in what country he lived, how long ago he lived and something of his life.

Other poems for reading to children:

- The Children's Hour. (14-4955.)—Longfellow. (13-4726-27.)
- The Spider and the Fly. (12-4269.)—Mary Howitt.
- Good Children Street. (9-3340.)—Field. (13-4819.)
- My Playmate. (18-6466.)—Whittier. (13-4727-28.)
- The Wind in a Frolic. (1-228.)—William Howitt.

For other suitable poems see Poems of Childhood (20-7673-74).

Learn the parts of the poems you like best by heart.

Why do you like those parts better than others?

LITERATURE, 4TH GRADE

Average Age, 9 to 10½

Stories for children to read:

- King Alfred and the Cakes. (4-1432.) (See also 4th Grade History.)
- Bruce and the Spider. (Find out something of the story of Scotland at this time.)
- Poem about Bruce and the Spider. (15-5521.) Story of Scotland. (12-4205-10.)
- Hiawatha's Friends.
- Legend of Hiawatha. (19-6985.) Indian Life. (1-160-65.)
- Goody Two Shoes. (9-3077.)
- Sindbad the Sailor. (19-7215-16.)
- Ali Baba and the Forty Thieves. (2-537-38.)

For other suitable stories see Myths and Legends (20-7695-96) and Nature Stories (20-7697).

LITERATURE, 5th GRADE

Stories to be read to children are:

Robinson Crusoe. (2-665-75.)
Story of Peter Pan. (13-4659-64.)
Alice in Wonderland. (3-1089-98; 4-1179-86, 1333-42.)
Pied Piper of Hamelin. (1-224.)

Poems for the year are:

The Mountain and the Squirrel. (3-846.)—Emerson. (13-4630.)
I Live for Those Who Love Me. (9-3274.)—Banks.
The Fountain. (2-607.)—Lowell. (13-4728-29.)
Robert of Lincoln. (15-5523.)—Bryant. (13-4629-30.)
The Owl. (6-2153.)—Tennyson. (10-3469-72.)
A Boy's Song. (2-607.)—Hogg. (12-4228; 10-3610.)
Seven Times One. (14-4956.)—Ingelow. (12-4232.)

For other suitable poems see Poems of Childhood (20-7673-74).

Who was the author of each of these poems? To what nationality did he belong? What are some other poems by him? (For other poems by these authors see Poetry Index under name of author.)

LITERATURE, 5TH GRADE

Average Age, 10 to 11½

Stories for children to read:

The King of the Golden River. (6-2221-28; 7-2343-50.)—Ruskin. (9-3311, 3314-16.)
Gulliver's Travels. (3-947-56.)—Swift. (5-1619-20.)
Christmas Carol. (17-6115-21.)—Dickens. (8-2731-37.)
Greek Myths. (See Index under Myths, Greek.)
Norse Myths. (15-5328-29.)

For other suitable stories see Myths and Legends (20-7695-96); Adventure Stories (20-7697); Hero Stories (20-7698-99).

Learn something of the lives of each of the authors of these tales.

Poems for the year are:

The Village Blacksmith. (1-227.)—Longfellow. (13-4726-27.)
Columbus. (2-485.)—Joaquin Miller.
In Flanders Fields. (16-5924.)—McCrae.
To the Fringed Gentian. (19-6873.)—Bryant. (13-4629-30.)
Aladdin. (18-6468.)—Lowell. (13-4728-29.)
How They Brought the Good News. (19-6867-68.)—Robert Browning. (10-3687-91.)
Paul Revere's Ride. (15-5649.)—Longfellow.

For other suitable poems see Story Poems (20-7682) and Patriotic Poems (20-7678).

First find out the circumstances that called forth the writing of these poems. Then read them and get their feeling and spirit. Remember that the most important thing is to *feel* the poem and to get its picture. You can not *feel* it unless you know the meaning.

LITERATURE, 6TH GRADE

Average Age, 11 to 12½

Good stories to read are:

Robin Hood. (2-397-402.)
King Arthur and His Knights. (19-6941-53; 16-5823; 17-6320-23; 7-2460-61.)
How Regulus Went Back to Die. (1-125.)
The Little Princes in the Tower. (1-147.)
The Story of William Tell. (19-7217-19.)
Scottish Chiefs. (12-4319-26.)

For other suitable stories see Hero Stories (20-7698-99) and Historical Stories (20-7699-7700).

Find out something of the scene or country in which the story is located, how long ago it happened and what customs and history combined to make the time different from your own. Practice *judging* a story. Why is it interesting? Which is the best part? Which characters are most life-like?

Poems for the year:

About Ben Adhem. (3-1138.)—Hunt.
Old Ironsides. (4-1380.)—Holmes. (13-4728.)
Song of Marion's Men. (11-4032.)—Bryant. (13-4629-30.)
The Owl Critics. (7-2640.)—James T. Field.
The Year's at the Spring (All's Right With the World). (2-607.)—Robert Browning. (10-3687-91.)
The Soldier. (12-4273.)—Rupert Brooke. (17-6393-94.)

For other suitable poems see Longfellow (20-7667) and Songs and Lyrics (20-7677).

LITERATURE, 7TH GRADE

Average Age, 12 to 13½

Good stories to read are:

Rip Van Winkle. (12-4481-85; 13-4559-62.)—Irving. (13-4625-26.)
The Man Without a Country. (7-2401-08.)—Hale.
Pilgrim's Progress. (15-5543-52.)—Bunyan. (4-1477-80.)
Wacousta. (9-3141-49.)—Richardson. (14-5105-06.)
Westward Ho! (14-5027-34.)—Kingsley. (11-3892, 3894.)
Roughing It in the Bush. (16-5901-05.)—Mrs. Moodie. (14-5105-06.)

For other suitable stories see Hero Stories (20-7698-99) and Famous Books (20-7688-93).

What was the period (time) and scene of each of these stories? Some of them are by American and some by English authors. Which are English? Which American?

Poems for the year:

It is not Growing Like a Tree. (3-847.)—Ben Jonson. (3-1125.)
Sweet and Low. (1-322.)—Tennyson. (10-3469-72.)
The Brook. (1-101.)—Tennyson.
The Bells. (16-6023.)—Poe. (13-4725-26.)
Nathan Hale. (4-1381.)—Finch.
Slave and Emperor. (11-4111.)—Noyes. (12-4233-34.)

For other suitable poems see Historical Poems (20-7679) and Nature Poems (20-7680).

LITERATURE, 8TH GRADE

Average Age, 13 to 14½

Good stories to read are:

Treasure Island. (13-4645-53.)—Stevenson. (8-2868-69; 9-3298, 3188.)
Ramona. (1-133-40.)—Mrs. Jackson. (13-4819-20.)
The Gold Bug. (5-1899-1904.)—Poe. (13-4725-26.)
Two Years Before the Mast. (9-3357-64.)—Dana. (13-4628-29.)
David Copperfield. (8-2773-81.)—Dickens. (8-2731-37.)

For other suitable stories see Famous Books (20-7688-93).

Who was Robert Louis Stevenson? Tell something of his life and death. What other poems and stories of his do you know? What are the outstanding characteristics of his work?

What famous American author wrote the Gold Bug? When did he live? What are some of his other works?

Name some other books by the author of David Copperfield. What sort of life did he best portray?

Poems for the year:

Julius Cæsar. (11-3929-31.)—Shakespeare. (2-722-24.)
To a Skylark. (11-4034.)—Wordsworth. (7-2353-58.)
If. (6-2036.)—Kipling. (11-3899; 12-4233.)
The Daffodils. (1-102.)—Wordsworth.
The Bugle. (8-2903.)—Tennyson. (10-3469-72.)

For other suitable poems see Descriptive Poetry (20-7679-80) and Sonnets (20-7681)

Who wrote each of the above poems? What are some other poems by these authors? (For other poems by these authors see Poetry Index under name of author.)

LITERATURE, 9TH GRADE

Average Age, 14 to 15½

Good stories for reading:

The Last of the Mohicans. (1-267-78.)—Cooper. (13-4626, 4628.)
The Story of the Iliad, the Odyssey and the Æneid. (Learn who wrote each of these, and the approximate time of writing.) (6-1983-89.)
Ben Hur. (10-3745-52.)—Wallace. (13-4823.)
The Waverley Novels. (11-4069-78.)—Scott. (7-2625-32.)
Moby Dick. (15-5401-08.)—Melville. (13-4629.)
Tom Brown's School Days. (14-5149-55.)—Hughes.
Masterman Ready. (18-6757-66.)—Marryat.

For other suitable stories see Famous Books (20-7688-93) and Poems and Plays (20-7700).

Who wrote "The Last of the Mohicans"? Why is he important in American literature? What type of story did he write? What are some of his other works?

Who wrote the Waverley Novels? Learn something of Sir Walter Scott's life.

COURSE OF STUDY

Poems for the year:

Lays of Ancient Rome. (10-3639.)—Macaulay. (9-3204-05.)
The Cloud. (18-6647.)—Shelley. (7-2491-92.)
The Skylark. (16-6021.)—Shelley.
To a Waterfowl. (17-6379.)—Bryant. (13-4629-30.)
The Man With the Hoe. (8-3003.)—Markham. (14-5013.)
O Captain! My Captain! (10-3736.)—Whitman. (13-4729-30.)
Invictus. (3-1142.)—Henley. (12-4232-33.)

For other suitable poems see Historical Poems (20-7679), Descriptive Poetry (20-7679), Religious Poetry (20-7680), Immortality (20-7681), Sonnets (20-7681), Ballad Poetry (20-7682), Story Poems (20-7682), Humorous Poems (20-7682).

NATURE STUDY, 1ST GRADE

Average Age, 6 to 7½

COURSE OF STUDY

QUESTIONS

(NOTE. For pictures of animals, flowers, fruits and vegetables given below, look under their names in the index.)

1. COMMON ANIMALS.
Those known at home or in near-by surroundings.
Cat, dog, mouse, canary, cow, robin, squirrel, horse, rabbit, sparrow, goldfish, pigeon.
2. ANIMALS WE READ ABOUT.
Sheep, fox, bear, wolf, owl.
3. CARE OF PLANTS.
Seedlings.
Bulbs.
4. SPECIAL DAYS. (6-2087-95.)
Thanksgiving Day.
Christmas.
Arbor Day.
5. FLOWERS.
Aster, goldenrod, pussy-willow, rose.
Know names, general shape and color.
6. FRUITS.
Apple, peach, banana, orange.
Be able to identify.
7. VEGETABLES.
White potato, sweet potato, onion, carrot, corn.
Thanksgiving Day as Harvest Home.
8. WEATHER.
Note sunny days and cloudy days.
Winds: Strong, cold, soft, gentle.

Why has the cat no claws when she plays and sharp ones when she is angry? Why does the cat always fall on its feet? (8-2719-20.) Why can the cat see better in the dark than I can? (5-1807.) What happens inside the cat when it purrs? (18-6694.) Do cats and dogs ever cry? (17-6179.) Why does the dog turn round and round before he lies down? (4-1231.) How can you show the dog that you are his friend? How does the dog say "Thank you"? Why are the cat and dog useful animals? (2-710, 711-12; 16-5735-38.) Why do horses need to wear shoes? (15-5366.) Why does a horse wear blinkers? (9-3356.) How do the father and mother birds care for their young? (8-2760.) What thing must the plant have in order to grow? (2-461.)

NATURE STUDY, 2ND GRADE

Average Age, 7 to 8½

COURSE OF STUDY

QUESTIONS

(NOTE. For pictures of animals, birds, plants, flowers and vegetables given below, look under their names in the index.)

1. ANIMALS.
Goat, donkey, deer, lion.
(a) Teeth.
(b) Food.
(c) Hoof.
(d) Coat.
2. BIRDS.
Turkey, goose, duck, bluebird.
Why the birds go south. (8-2762.)
3. PLANTS.
Plant culture; care of plants.

What sort of food does the goat like best? (4-1377.) What is a baby goat called? What differences do you notice between the goat and the sheep? (4-1377.) How can the donkey eat a thistle, thorns and all? (6-2124.) How are both useful to mankind? (Usefulness of goat, 4-1377-78; usefulness of donkey, 6-2018-20.) How can a duckling swim without being taught? (15-5518.) Why does a duck keep dry in the water? (10-3580.) What are the differ-

COURSE OF STUDY

COURSE OF STUDY

Nasturtium, sweet-pea, daisy.
Trees. (12-4507-15; 13-4635-43.)
Buds in spring time.
Falling leaves in autumn.
Seasons.
Names of common trees.

4. WEATHER CONDITIONS.

Weather calendar.
Observe clouds, fog, dew, ice, winds.

5. VEGETABLES.

Recognize beans, peas, turnip, beet, radish.
After soaking, plant peas and beans and observe growth.

QUESTIONS

ences between a goose and a duck? (11-3885, 3888.) Why do most of the birds leave us when the cold weather comes? (8-2762.) Where do they go? What birds stay with us? (13-4759-64.) Does a bird always sing the same song? (5-1606.) How does the bird know how to build its nest? (14-5220-21.) What weeds furnish most of the bird's food? (15-5395.)

NATURE STUDY, 3RD GRADE

Average Age, 8 to 9½

COURSE OF STUDY

1. ANIMALS.

Fishes.
Common birds of the neighborhood.
How birds help man. (8-2762.)
Beasts of burden.
Horse, ox, donkey, camel, elephant.
Kindness to animals.

2. ANIMALS AND INSECTS USEFUL TO MAN.

Sheep. (4-1369-78.)
Silkworm. (15-5312-14.)
Honey-bee. (17-6221-33.)
Fur-bearing animals.

3. PLANTS.

Care of seedlings.
Life history of a plant. (2-503-10.)

4. WEATHER CALENDAR.

Seasons. (More fully.)
Simple reasons for change of seasons. (8-2791-94.)

5. EFFECT OF LIGHT AND HEAT.

On Plant Life (2-745) and Animal Life.

QUESTIONS

Can the fish see and hear us? (11-3841-42.) Does a fish feel? (1-187.) Does he close his eyes and sleep under water? (10-3474.) How do fish live in a frozen pond? (11-3976.) Why does the fish not drown? (8-2716.) Why do fish die on land? (11-3841.) Why do they die in a jar of water? (10-3732.) In what ways are fish useful to us? (11-4051, 4057; 16-5898; 6-2216.) What bird has the longest wings? (8-2720.) Why do birds shed their feathers every year? (17-6290.) Why does a flying bird not fall to the ground? (7-2611.) In what ways are birds of value to mankind? (8-2760, 2762; 9-3288.) Name five animals used as beasts of burden. How is it possible for the camel to go so long without water? (5-1596.) How is the camel specially adapted to desert life and travel? (5-1596-98.) Where is the elephant most used? (6-2140-45.) Has he a bone in his trunk? (7-2361.) What animals are most useful to man for clothing? (4-1369; 15-5575.) For food? (4-1259-60, 1262.) Tell the life history of some plant that you have raised from seed. What will happen to a plant that has no light? No air? (2-461; 11-4093-94.) What causes change of seasons? (8-2791-94.)

NATURE STUDY, 4TH GRADE

Average Age, 9 to 10½

COURSE OF STUDY

QUESTIONS

1. PLANTS.

(a) Fruit trees. (6-2057-68.)

Which blossom first?

Watch the development of the fruit from the blossom.

Make a collection of leaves of trees that have been injured by insects and plant diseases.

Blight, mildew, rust, borers.

The caterpillar, an enemy.
(18-6532.)

Work of the Farm Bureau.

(b) Evergreens. (13-4634-38.)

Contrast with deciduous trees.

Meaning of "deciduous" (trees which shed their leaves at the end of the growing season each year).

Different kinds.

(c) Different kinds of lumber. (12-4245-60.)

Name five of our most useful fruit trees. (6-2057-68.) Where are these most commonly grown? In what seasons do they bear? Why have many fruits stones or pits? (3-978; 7-2362.) What is the difference between a fruit and a vegetable? (18-6693.) What are some wild fruits? (11-4019-28.) Why and how does cultivation improve fruit? (4-1387-90.) What is grafting? (16-5959.) Tell the life story of the apple. (4-1387.) Why should we destroy caterpillars' nests? (18-6532.) What are some of the commonest diseases that attack trees? How do evergreens differ from other trees? (2-510; 13-4635-43.) Where are they found in greatest quantities? (13-4634-38.) What are some of the better known varieties? (12-4249-50.) What are some of the most useful kinds of lumber? (12-4245-60.) What kinds are used for houses? For furniture? Why do leaves change color in autumn? (15-5520.)

2. ANIMALS.

The chipmunk compared with the squirrel. (3-1127-29.)

Kindness to animals.

The garden toad. (15-5454.) Why he is our friend.

Life history of the frog.
(15-5453-56.)

Trace this by putting eggs of the frog in your aquarium and watching the tadpole develop.

What are some of the ways in which we can show kindness to birds? (13-4837; 9-3278.) Why is the bird the farmer's friend? (8-2762.) Tell the life history of the butterfly. (18-6525-47.) Compare the chipmunk and the squirrel. (3-1127-29.) In what ways is the toad different from the frog? (15-5453-56.) Why is the toad our friend?

NATURE STUDY, 5TH GRADE

Average Age, 10 to 11½

COURSE OF STUDY

QUESTIONS

1. SEEDS AND INSECTS. (2-503-10; 17-6063-78.)

Visits of insects and developing of seed.

Bees and flowers. (17-6220-33.)

Flowers. Study of parts. (2-506; 3-1013-14.)

Seed dispersal. (3-1083-87.)

2. STUDY OF INSECTS. (17-6063-78; 18-6721-34.)

What does the bee get in the flower? Of what benefit to the flower is his visit? (17-6224.) Do insects visit some flowers more than others? (Color plates, 17-6073-76.) Why? What is the connection between the color of the flowers and insects' visits? Which insects do the greatest amount of work in pollinating the flowers? Why do some trees flower when others do not? (8-2720.) What are the parts of a simple

COURSE OF STUDY

COURSE OF STUDY

- Life history of cricket, grasshopper, katy-did, potato beetle. (18-6623-30.)
- Mouth parts and their function in feeding.
- Harmful insects. (15-5488; 18-6731-34.)
3. STUDY OF FERNS. (4-1232; 3-884.)
4. ELEMENTARY FORESTRY.
- Yearly and life cycle of a tree. (11-4093-4108.)
- Uses of forests and trees. (12-4245-50.)
- Lumber industry. (16-5985-96.)
- Regions.
- Falling.
- Logging.
- Sawing.
- The wood pulp industry. (7-2445-53.)
- Forest preservation. (8-2680, 2803-10.)
- Some animal products used for food in the city.
- Milk, butter, cheese, fish, oysters, crabs, fisheries, eggs and poultry.

QUESTIONS

flower? (2-506; 3-1013-14.) How does a fern grow? (4-1232.) In what different ways are seeds dispersed? (3-1083-87.) Can one plant produce thousands of seeds in a season? (13-4826.) Do seeds breathe as we do? (15-5519-20.) What has the seed to do with determining the color? (14-5087.) Will a seed grow after thousands of years? (8-2718.) How are the mouth parts of the butterfly adapted for securing its food? (5-1609.) Name some harmful insects and tell why you so consider them. (15-5488; 18-6731-34.) Why is it so important that we preserve our forests? (8-2680.) What connection is there between forests and water supply? Describe the history of a log to be used for wood pulp from the forest to your notebook. (7-2445-53.)

NATURE STUDY, 6TH GRADE

Average Age, 11 to 12½

COURSE OF STUDY

1. PROTECTION OF WILD LIFE—BIRDS, ANIMALS AND FLOWERS. (9-3278; 8-2814-18.)
- Life and work of Audubon. (19-7052.)
- Work of the government in creating refuges. (4-1264.)
- Need of further work.
- How the buffalo, deer and elk vanished. (4-1263, 1447.)
2. STUDY OF CEREALS.
- Study of germination and growth of wheat (5-1754-63), oats and barley (5-1851-52).
- Advantages and food value of each, and kind of soil necessary for growth. (7-2423-25.)
- Sections where grown.
- Insects that feed on crops.
- How combated. (5-1757, 1762.)
- Study of muskrat and beaver. (3-1132-34.)

QUESTIONS

Who was Audubon? (19-7052.) Why do we specially remember him? What is our responsibility in preserving wild life? (9-3278.) Why are the wild flowers so fast disappearing from the countryside? What great refuge for animals has the government established in the state of Wyoming? (4-1264.) Tell the story of the extermination of the buffalo. (4-1263-64.) Tell the life history of wheat. (5-1754-63.) Give the plant structure and varieties of oats. What are the food values of these grains? (7-2423-25.) What are some of the insects most injurious to crops? (5-1757, 1762.) Compare the beaver and the muskrat, as to structure, food, home and habits. (3-1132-34.) Compare the dog with the fox, with the wolf. (2-597-600, 711-18.) What do we mean by "instinct" in a dog? (4-1231.) What causes dew, fog, ice, rain? (8-2921-24.) Could we live without rain? (17-6290.) Where does the rain go? (6-2249.)

NATURE STUDY, 6th GRADE

COURSE OF STUDY

QUESTIONS

The dog in comparison with wolf and
fox. (2-597-600; 2-711-18.)
Natural instincts. (14-5220-21;
4-1231.)

3. NATURAL PHENOMENA.

Planets. (9-3289-93; 10-3409-14.)
Evening star. Aurora. (16-
5670; 10-3704.) Etc.

Cause of dew, fog, ice, rain.
(8-2921-24.)

What are planets? (9-3289-93.) In what
part of the sky do we see the aurora borealis?
(16-5670; 10-3704.)

SCIENCE, 7TH GRADE

Average Age, 12 to 13½

THE FOOD WE EAT

COURSE OF STUDY

QUESTIONS

(NOTE. When the answers to several successive questions are found on the same page, the volume and page is given after the last of those questions.)

1. Production.

(a) Where our food comes from.

Can the earth support all things that are born? (13-4827.) Will the world's food supply ever run short? (14-5225.) Name five important food plants in each continent. (19-7247.)

(b) The kinds of food we eat.

1. Meat.

Meat as a Food. (7-2567.)

The Great Cattle Family.
(4-1258.)

Our Domestic Poultry.
(12-4491.)

The Sheep and Goats.
(4-1369.)

Fishes of the Deep Sea.
(16-5893.)

Fishes of Shallow Seas.
(16-5772.)

Fishes of River and Lake.
(15-5629.)

How Fish and Oysters Are
Taken. (11-4051.)

Crabs, Lobsters and Their Kin.
(16-5949.)

How Meat Products Are Used.
(7-2512.)

Is it right to kill animals for food? (7-2567.) Is it possible to live without eating meat? What name do we give to people who do not eat meat? Give two arguments in favor of eating meat. (7-2568.) Why is beef becoming higher in price? Name a great beef-producing country. Where does the meat for the great cities come from? (9-3207.) What city is the world's greatest stock market? (9-3209; 19-7109.) What are some of the by-products of the animals supplying us with meat? (7-2513.) How long has man raised poultry? (12-4491.) Would you say that poultry and eggs are an important product? What are the leading poultry states? How many eggs are used in the U. S. each year? (9-3208.) What important forms of nourishment do eggs contain? Why are soft-boiled eggs better to eat than hard-boiled eggs? What is the value of fish as food? Is fish a good brain food? (7-2569.) What is the most important fish of the Atlantic? Of the Pacific? Of the Great Lakes? (11-4052.) How is it that fish are not salt when caught? (9-3100.) Name a few of our important salt-water fish. (16-5775.) Name a few fresh-water fish. What is caviare? (15-5630.)

2. Vegetables.

The Useful Vegetables.
(7-2613.)

Name three vegetables in which the seeds are contained in a pod. (7-2613.) Why has the lentil been a favorite food in Catholic countries? (7-2614.) Name three vegetables whose stems we eat. Mention three plants whose leaves we eat. (7-2616.) Why is the peanut valuable to man? (7-2614.) What is the most important of the plants whose underground stems, called tubers, we eat? (7-2618.) Why does a

COURSE OF STUDY

QUESTIONS

3. Fruit.

The Most Important Fruits.
(6-2056.)

Where Does an Apple Come
From? (11-3975.)

potato not rot under the earth while it is growing? (18-6554.) Why is the potato a valuable food? (5-1624.) Why would the constant use of potatoes as the principal food be unwise? (7-2623.) Why should we boil potatoes in their jackets? (8-2872.) What states lead in the production of potatoes? (10-3406.) What are vitamins? (5-1624.)

What is the difference between a fruit and a vegetable? (18-6693.) What is the most prized family of fruits? Name a few fruits which belong to this family. Where are most of the oranges we eat grown? (6-2057.) Why do oranges not grow in Canada? (15-5365.) Where do most of our lemons come from? Why are lemons always picked green? Why must lemons "be handled as carefully as eggs"? (6-2058.) Why are the skins of the citrous fruit valuable in confectionery? What are some of the uses to which the banana plant is put? (6-2060.) What country is noted for the growing of pineapples? (6-2062; 15-5451; 9-3301.) Why are thousands of bushels of apples allowed to rot on the ground each year in the U. S.? (6-2064.) What is the difference between a ripe and an unripe apple? (3-1016.) What states raise the most peaches? What state in the U. S. raises more prunes than any country? (6-2064.) To what uses are grapes put? (6-2060; 11-3818.) What two states supply us with the most fruit? (11-4084.) Why should we eat fruit? (6-2068; 3-1016; 6-2187.)

4. Bread.

The Wonderful Story of Wheat.
(5-1754.)

How Flour Is Made. (8-2795.)

The Bread by Which We Live.
(7-2423.)

The World's Bread and Butter.
(1-371.)

Why is bread called the "staff of life"? (8-2795.) What two foods could keep us alive for a long time? What is meant by the expression in the Bible that "all flesh is grass"? (7-2423.) Describe a grain of wheat. (8-2795.) What makes wheat so valuable for the baker? (5-1758.) What country raises the most wheat? (8-2678.) Name some other important wheat-growing countries. (5-1760.) What is meant by "spring wheat" and "winter wheat"? Why do Kansas farmers plant wheat in the fall? Why do North Dakota farmers plant wheat in the spring? Why is the wheat farmer not sure of a big crop? What part of the U. S. is noted for wheat-raising? (15-5278.) How is wheat harvested? (1-374.) How was the grain ground before modern times? (1-372.) By what power was the mill-wheel turned in the time of the Ro-

COURSE OF STUDY

QUESTIONS

5. Cereals.

The Great Cereals. (5-1850.)

mans? (8-2796.) How is flour made by modern methods? (8-2798; 1-376.) What city is noted for the manufacture of flour? (15-5280.) How do they manufacture, pack and store flour? (8-2797; 1-376.) How is the bread we eat baked? (1-372.) Why is bread so valuable? (7-2423.) What two important substances does good bread contain? Why is new bread more indigestible than old? (7-2486.) Is the whitest bread the purest? (7-2423.) Why should we eat the crusts of bread? Why should we eat bread with cheese or butter? (7-2424.) Why is bread and butter a perfect food? (1-373.)

Name five important cereals grown for food. (5-1850.) What is the greatest of the cereals? (5-1851.) What two important substances do oats contain? Why is oatmeal and milk an excellent breakfast food? (7-2425.) What is the great disease of the oat? (5-1851.) What grain will flourish where the others perish? For what is the greater part of the barley crop of the world grown? Why is rye called "the grain of poverty"? Why is it good for the making of bread? (5-1852.) Why is rice inferior to wheat as a food? (7-2424.) What does rice lack? What is "paddy rice"? Why is it better than the rice you buy from the grocer? (5-1856.) What peoples are great eaters of rice? (5-1854.) What country grows the best rice in the world? (5-1855.) What country is the greatest producer of corn? (5-1856.) What three qualities make corn a very desirable food? (7-2424.) To what other great use is corn put besides as food for man? (5-1856; 7-2412; 15-5282.) What is the great enemy of corn? (5-1856.) Name the states in the Corn Belt. (15-5280.) What is corn sometimes mixed with to make bread? (1-372.) Why might we truthfully say that "corn is the principal source of food of the American people"? (15-5282.)

6. Milk, sugar, tea, coffee, cocoa.

Plants of the Breakfast Table.
(7-2531.)

Where Sugar Comes From.
(10-3415.)

How Coffee Comes to Us.
(6-2177.)

The Story in a Teacup. (2-760.)

Why is goat's milk valuable? (7-2323.) From what is sugar obtained? (7-2531; 10-3415; 10-3420.) What took the place of sugar in olden times? (10-3415; 17-6221.) What things contain sugar? How is sugar made from the sugar-cane; from sugar-beets? (10-3416.) What countries produce sugar? (10-3415, 3418; 7-2531.) Why is sugar sweet? (1-310.) What are the following: lactose, glucose, saccharose?

COURSE OF STUDY

QUESTIONS

Finding out How Milk is Handled. (10-3508.)

Is sugar a valuable food? (10-3416.) When was tea first used? Which are the chief tea-raising countries of the world? (2-761.) Can tea be raised in the U. S.? (2-762.) How do teas get their names? (7-2536.) Describe how the tea is treated at the factory. (2-762.) Which countries use the most tea? (2-761; 7-2532.) Why do they say that strong tea is bad for us? (5-1607.) Why do tea and coffee keep us awake? (4-1451.) What country is noted for the production of coffee? (7-2536; 6-2177.) Is cocoa good for us? (15-5366.)

7. Salt, spices, etc.

A Grain of Salt. (3-925.)
The Spice Plants. (8-2990.)
Figs and Dates. (6-2157.)
Mushrooms, Edible and Poisonous. (11-3904.)

What country produces a great deal of salt? (3-926; 4-1402; 17-6040; 9-3212.) What are some of the uses to which salt is put? (3-926.) How is salt obtained for our use? How is salt made fit for our use? (3-927.) What is the most common spice? Where is the plant found? Mention a few other spices. (8-2991.) What two fruits are noted for their high food value? (6-2157.) What is the home of the date? (6-2157; 5-1624.) Name three uses of the date-palm besides that of food. (5-1624.) Where is the fig grown in abundance? (6-2158.) What state in the U. S. produces a very large crop of figs? (6-2162.) Why is it important to know mushrooms? What are the ways of telling good mushrooms? (11-3907.) What varieties are edible; what are poisonous? (10-3723; 11-3907.)

2. Selection.

(a) A balanced diet.

Food and Its Uses. (6-2185.)
How to Eat. (6-2083.)

Why do we eat? (6-2086; 18-6694.) What makes us hungry? (5-1808.) Why is the body like a furnace? What important fuel is used by the body? Where is this fuel made? (6-2185.) What is the most important use of food? What are the things that our bodies receive daily from the outside world? (6-2186.) Does the brain need food? (5-1811.) Why do we cook the food we eat? (4-1451; 11-3842.) What three foods make up the chief part of our diet? What food burns away our bodies? What food rebuilds our bodies? (6-2187.) What foods are particularly necessary for children? (6-2188.) Why are children so fond of sugar and sweet things? (6-2187; 10-3416.) When may a boy require more food than a man? What would be the average diet for a man? What are some of the things that determine how much food we should eat? (6-2188.) Why is a big meal a bad thing for an exhausted person? (12-4503.) What happens to our

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

3. Preservation and care in the home.
 - (a) Methods of preserving:
 1. Canning.
 2. Preserving by sugar; by salt.
 3. Dehydrating.
 4. Pickling.
 - (b) Care of meats, milk and vegetables for immediate use in the home.
How to Keep Fruit Fresh.
(11-4084.)
 - (c) Methods of caring for the home refrigerator.
Home observations and reports on the above topics.

food when it reaches the stomach? (6-2083.) What two secretions help to digest the food in the stomach? How do these secretions act on the food in the stomach? What does our stomach do for us? (6-2084.) Could we live without a stomach? (6-2085.) What makes the food move in the intestines? (6-2085.) What are the following: hydrochloric acid, pepsin (6-2084); stomach (6-2083); bowel, pancreas (6-2085); bile (6-2086); calorie (18-6694)? How does the food get into the blood? What are the following: capillaries, lacteals? (6-2086.) What is the source of the whole strength of our food? (7-2425.) Name the best foods which contain protein; fats. (7-2569.) What is meant by the statement that we live not by what we eat, but by what we absorb? (6-2086.) Does the food that weighs the most contain the most nourishment? Is the food that costs the most the healthiest? (7-2423.)

What causes fruit to spoil? (11-4084; 2-437.) Why does milk turn sour? (17-6174; 2-557; 7-2326.) Why should milk be pasteurized? Why should care be used in the handling of milk? (10-3508.) Why should fruit be handled carefully? Should fruit be ripe when gathered? (11-4084.) Why should milk be kept cool? (10-3508.) Where should fruit be kept? (11-4084.) Describe two ways in which beans are preserved. (7-2614.) Mention at least two ways in which fruit is preserved. How is the preserved fruit sterilized? Why is this done? (11-4084.) Who started the idea of cold storage? (5-1607.)

THE WATER WE DRINK

1. Sources.
 - (a) Oceans, rivers, lakes, springs, wells, reservoirs.
The Rivers and the Seas. (7-2537.)
Where Does the Rain Go? (6-2249.)
How Fire and Water Made the World. (2-525.)

Is there any water in the sun? (6-2122.) Is there any water anywhere except in our world? (14-5222.) How much water is there in the sea? (10-3578.) How deep is the sea? (3-875.) Can fresh water be found in the sea? (2-584.) What do rivers do besides supply us with water? (7-2537.) What countries are made of river mud? Why did the old Egyptians worship the river Nile? What are the five greatest rivers in the world? How are lakes formed? What is the largest lake in the world? What kind of water has it? (7-2538.) What are the largest fresh-water lakes in the world? (7-2484.) Where does spring water come from?

COURSE OF STUDY

QUESTIONS

2. Uses.

- (a) Drinking, cooking, cleansing, sanitation, transportation, fires, pleasure, gardens, etc.

The Rain That Raineth Every Day.
(8-2921.)

A River Under a City. (14-5055.)

3. Protection from pollution.

- (a) Water-shed protection.
- (b) Aeration stations.
- (c) Filter-beds.
- (d) Keeping well-water free from contamination.
- (e) Boiling.
- (f) Distillation.
- (g) Chemical treatment.

4. Water power.

Water Power of the World.
(15-5429.)

(6-2249; 15-5620.) Why is spring water very good to drink? (15-5620.) What are artesian wells? Where are artesian wells possible? (6-2249.) What is a reservoir? Name a few large reservoirs. (14-5055.)

Why must our lives be lived in running water? Why can man go without food for many days, but not without water? Why do children need a frequent supply of water? (6-2186.) Is it harmful to us to drink rain-water? (1-310.) Why are we sure that pure water has no taste? (14-5225.) Why did ancient civilized nations inhabit regions about large bodies of water? How does the presence of bodies of water help manufacturers and farmers? What large cities in the U. S. started on large bodies of water? (13-4881.) What are the uses of the sea to man? (12-4145.) Why does water put out fires? (11-3979.) If the gases in water make fire, why does water quench it? (15-5614.) Why does a light go out in water, but flare up in gasoline? (10-3729.) What will water do to burning oil? (10-3772.) Why do people seek the shores of the ocean? (12-4146.)

Why must cities go far away for their water supply? What is the disadvantage of going far for water? What would happen if the water supply of a large city stopped even for a day? (14-5055.) What are the lakes of water called? What is the wall that helps to form the lake called? (14-5056.) How is the water brought to cities? (14-5059.) What is there in impure water that makes it dangerous to drink? (8-2872.) What disease germ in particular do we swallow with impure water? (8-2872; 2-559.) What are aerators? What do they do to the water? (14-5057.) Why is a running stream purer than a stagnant pool? (14-5084.) Why should we filter water, especially in the country? How can you make a filter? (18-6781.) How do chemicals help to purify water? (14-5060.)

Why is swift water called "white coal"? (15-5429.) What do we mean when we say we have harnessed a stream? (9-3212.) What nation used water power 2,500 years ago? (8-2796.) In what countries of the world has water power been used for hundreds of years? (15-5429.) What is the greatest water power at present? What countries in Europe are rich in water power?

COURSE OF STUDY

QUESTIONS

5. Properties of water.

- (a) Specific gravity, specific heat, evaporation, surface tension, buoyancy, pressure, freezing, etc.

The Size and Weight of Things.
(14-5035.)

Simple Experiments with Air and Water. (19-7083.)

The Magic of a Glass of Water.
(2-622.)

A Fairy-fountain Experiment.
(2-627.)

How does the U. S. rank in water power? Name a few cities whose power is derived from water. What continent has the most water power? (15-5430.) Can we make the tides work for us? (18-6558.) Do the waves give us water power? (15-5433.) For what purpose was water power formerly used? (15-5429.) In what other industry besides manufacturing is water power important? (15-5433.) What valuable part is played by water power in modern life? (7-2538; 15-5429.)

Why do we use water as a standard for measuring weights? (14-5036.) At what temperature is water the densest? What is the specific gravity of water? With what instrument can we find the specific gravity of any liquid? Why would that be important in the case of milk? What can a bottle of water teach us? (14-5037.) Why does not oil mix with water? (11-3842.) Why does oil float on the surface of water? (6-2125.) When water is boiling why can it not be made hotter? (13-4595.) Why does boiling water feel cold when we put our hand in it? (14-4950.) Why does boiling water make bubbles? (2-686.) Can we boil water in a paper box? Why? (2-623.) Why does a full bottle keep hot longer than one half full? (10-3475.) Why does the teapot keep hot so long? (16-5663.) Why does hot water take up more room than cold? (16-5960.) Why does a wet plate get dry if we leave it alone? (3-981.) Can a needle float? Why? (2-623.) How does a soap bubble hold together? Can we fill a tumbler of water above the brim? Why? (3-979.) Why is it easier to swim in sea-water than in fresh water? (14-5038.) In what directions do liquids exert pressure? (19-7084.) Will water flow upward? What is the principle on which the siphon works? (2-622; 15-5365.) Why is the bottom of a dam thicker than the top? (14-5055.) What are some of the uses to which water pressure is put? (15-5432.) What is the advantage of a storage reservoir's occupying an elevated position? (15-5429.) Why does water find its own level? (4-1229.) Why is the surface of the water always level? (16-5844.) Why is a snowflake lighter than a raindrop? Why does water sometimes burst pipes in winter? (9-3101.) Why does an iceberg float? (4-1355.) Why is it that the sea does not freeze? (11-3978.) Why does

COURSE OF STUDY

QUESTIONS

6. Ice.

(a) Sources, kinds, uses.

How We Get Our Ice. (2-529.)

shallow water freeze first? (8-2874.) Do we get a pound of ice from a pound of water? (14-5086.) Why does water always seem shallower than it is? (2-688.) What makes the water ripple when we throw a stone into it? (14-5221.) Why does water stay in a revolving pail? (5-1609.)

What is ice? (12-4277.) What difference does ice make in our comfort and in our health? What two kinds of ice are used in refrigerators? Where does natural ice come from? (2-529.) How thick must the ice be before cutting? How does the ice come to town when needed? (2-530.) Where is the ice stored during the summer? (2-531.) How is artificial ice made? (2-532.) Why do we find ice slippery? (7-2362.) Why does a piece of ice make a drink colder? (13-4827.) What are cold-storage warehouses? Why is cold storage a good thing for us? (2-535.)

THE AIR WE BREATHE

1. Composition and extent of the air.

Could We Reach Another World?
(4-1353.)

What is the air made of? (12-4504.) Is the air part of the earth? How high does the air go? What happens to the air as we go up? (1-143.) If we could go on traveling upward, where should we end? (17-6175.) Could we reach another world? (4-1353.) Where does the oxygen in the sun come from? (14-5225.) Why do the hills look blue at a distance? (9-3102.) Why does the air not stop the light of the sun? (15-5620.) How much water can air hold? (8-2921.) Does the air ever get used up? (1-312.)

2. Importance of air.

Life and the Lungs. (4-1325.)

Some Exercises to Practice at Home.
(15-5332.)

What to Do in Cases of Drowning.
(17-6147.)

What is the real name for breathing? What do we breathe in from the air? What do we breathe out into the air? (4-1325.) How is the air filtered as it comes into the lungs? What is important for us to remember? (4-1326.) What are the following: the lungs (4-1329); the diaphragm (4-1326)? Is oxygen a food? Do people suffer from "air-hunger"? (6-2186.) Do trees breathe? (11-4093.) What part of the air do trees use? (11-4094.) Does a rock breathe? (9-3102.) Do fish need oxygen? Can man get oxygen out of water? (15-5540.) What happens when we have a choking fit? How may we save ourselves? (4-1328.) Why should we wear our clothes

COURSE OF STUDY

COURSE OF STUDY

3. Ventilation.
Our Unseen Friends and Foes.
(2-557.)
4. Air Pressure.
The Pressure of the Air. (15-5285.)
How to Feel the Pressure of the Air.
(18-6784.)
Simple Experiments with Air and
Water. (19-7083.)

QUESTIONS

loose and not tight? (4-1329.) Perform a set of exercises that will keep you in good health. (15-5332.)

What is the most common poison for us? (3-806.) What is foul air? (4-1329.) How is one able to tell when the air in a room is bad? (4-1330.) What microbes are more destructive than snakes and tigers? Where do these microbes hide? What is the enemy of these microbes? (2-557.) Why should people sleep with their windows open? Why does sleeping out of doors benefit a person? (4-1331.) Where does the bad air go? (4-1453.) Is impure air lighter than pure air? (18-6692.) Is night air bad for us? (12-4278.) Why does damp air often make us ill? (12-4400.) Why are miners not killed by bad air? (2-460.) What should be done with the air in shops, factories and places where there are many people? (4-1331.)

We really live at the bottom of an ocean—of what? In what way are water and air alike? How are they different? (15-5285.) Has the air weight? (19-7083.) Describe a simple experiment to prove it. (19-7083; 18-6784.) In how many directions does air exert pressure? What experiment would prove this? (19-7083.) Could we breathe without atmospheric pressure? (15-5285.) If air exerts pressure, why do we not feel it? (15-5288.) Who discovered that air exerts pressure? How high will water rise in a pump? Why? If we fill a glass tube, closed at one end, with mercury, and turn it upside down in a cup of mercury, what will happen to the mercury inside the tube? What is the opposing force that holds it up? What fills the space in the tube above the level of the mercury? What do we call such an empty space? How can we measure the pressure of the atmosphere? What happened to a tube of mercury on a mountain? (15-5286.) What relation does atmospheric pressure have to weather? What is the name of the instrument that measures atmospheric pressure? (15-5287.) Are there barometers made without using mercury? What is suction? Why does soda water run up a straw when you draw on the straw? How does an ink-dropper work? Why does the ink not run out? (15-5288.) Explain how a lift-pump works. Who discovered the law of equal pressure? How can we prove that air exerts an equal pressure in

COURSE OF STUDY

QUESTIONS

5. Liquid Air.

6. Balloons, Airships and Airplanes.
The Riders on the Wind. (1-167.)
Making a Hot-air Balloon.
(10-3770.)

all directions? What is Boyle's Law? (15-5289.) Who is the man that fastened two things together with nothing? (4-1244.) What is a siphon? (15-5365; 2-622.) How does it work? What would be the effect of lengthening the long arm of a siphon? (15-5365.) How and why can a glass of water be inverted with the aid of a card without spilling the water? (19-7083.) What do scientists mean by the term "millibar"? (14-4952.) How does the pressure of air affect the boiling-point of water? (12-4277.) What is the specific gravity of air? Why does a balloon rise? Why will it not go up forever? (14-5038.)

What is liquid air? What is it used for? What happens to it? What does solid air look like? (15-5425.)

When were balloons first used? Where? What is the disadvantage of traveling in a balloon? For what purposes have balloons been used? (1-167.) Who is the founder of the airship? What are these ships now called? Are these ships lighter or heavier than air? What were airships used for during the war? Mention one notable flight of an airship. (1-168.) Mention one disaster. (1-178.) Is it likely that airships will be used instead of ocean liners? (1-168.) Who is the father of the flying-machine as we have it to-day? Is this machine lighter or heavier than air? (1-168.) Who were the brothers that perfected the airplane? When was this accomplished? Why was their invention hailed with great excitement? (1-170.) What is a hydroplane? Why is it that the higher an aviator goes the safer he is? How do aviators keep from falling? How high may an aviator fly? (1-172.) What was the influence of the World War on flight? (1-173.) What quality must a successful aviator possess? Why do aviators lose their sense of balance in the air? Why was the airplane so valuable in the War? What improvements have been made since the War? What notable achievements have been accomplished with airplanes? What will determine the speed at which man may fly? (1-174.) In what ways is the airplane very useful at present? (8-2658, 2808.)

TESTS (SCIENCE, 7TH GRADE)

Here are 30 easy questions. Answer 25. Count 4 for each correct one.

FALSE-TRUE

If the statement is true put a check after it; if false put a cross.

1. Ice-cream produces heat.
2. An expensive food is more nourishing than a cheap food.
3. A meat diet is unhealthful.
4. Food should be well chewed.
5. Boiled water is safe to drink.
6. It is easier to swim in fresh water than in sea-water.
7. When oil and water are mixed, the oil sinks to the bottom.
8. The higher up we go the heavier the air becomes.
9. Impure air is heavier than pure air.
10. The higher an aviator goes the safer he is.

COMPLETION

Fill in the proper word or words.

1. If one is overweight he should not eat
2. The organisms which cause food to spoil are called
3. We should drink only milk that has been
4. The most dangerous source of water pollution is
5. A person can go without for many days, but not without
6. Water always seeks its own
7. Boiling water be made hotter.
8. We breathe in and we breathe out
9. and are the enemies of microbes.
10. A balloon rises because

SELECTION

Each sentence talks about three things. Only *one* of the three is correct. Draw a line under the correct one.

1. In the summer we should eat plenty of (meat; vegetables; ice-cream).
2. An important fresh-water fish is (trout; cod; halibut).

TESTS

3. (Argentina; Cuba; Brazil) is noted for the production of coffee.
4. (Sweden; Mexico; Holland) is rich in water power.
5. An artesian well supplies (oil; water; gas).
6. An aerator is a place where (sewage is disposed of; water is purified; milk is pasteurized).
7. Trees breathe (oxygen; nitrogen; carbon dioxide).
8. Microbes like (sunshine; darkness; fresh air).
9. Air exerts pressure (in all directions; upwards; downwards).
10. The instrument that measures the pressure of the atmosphere is called a (hydrometer; thermometer; barometer).

SCIENCE, 8TH GRADE

Average Age, 13 to 14½

THE CLOTHES WE WEAR

COURSE OF STUDY

QUESTIONS

1. WHAT OUR CLOTHES ARE MADE OF.

(a) Wool.

Wool and Its Story. (15-5574.)

The Sheep and Goats. (4-1369.)

Why are we really putting on an animal's coat when we dress? Are we cruel to the sheep when we take his wool? What are two valuable characteristics of wool fibre? How many sheep are supplying the world with wool? (15-5575.) How much wool does a sheep produce? (15-5576.) How many pounds of wool does the world produce each year? (15-5578.) How old is the wool industry? What is the greatest sheep-raising country in the world? (15-5576.) What other countries produce much wool? (15-5576; 9-3208.) Why must we buy wool although we are the third largest producers? (9-3208.) Mention four different people that the sheep benefit. (4-1370.) What sheep furnishes a fine grade of wool? (15-5576.) What are the two distinct kinds of cloth into which wool is woven? (15-5577.) Briefly describe the steps in the process of making woolen cloth. (15-5578.) What country manufactures the most woolen goods? (4-1370.)

(b) Cotton.

How Cotton Becomes Cloth.
(14-5166.)

Plants That Clothe Us. (8-2782.)

What is the most valuable fibre in the world? What does cotton come from? (14-5167.) What countries produce cotton? (14-5167; 5-1626.) In what part of the U. S. is most of our cotton grown? (14-5167; 5-1626; 13-4524.) Why does the U. S. both sell and buy cotton? Where does most of the cotton come from that we buy? (14-5168.) What is the name of the cotton with the long fibre that we raise? (14-5168; 8-2678.) How are the seeds separated from the fibre? (14-5167.) How did the invention of the cotton-gin aid slavery? (6-1912.) What are the seeds used for? (14-5168.) What is the enemy of the cotton plant? (18-6729; 5-1626; 8-2784.) What country manufactures the best cotton cloth? What country manufactures the most cotton cloth? Which of the United States make the most cotton goods? (14-5168.) Describe the different processes in the manufacture of cotton cloth. (14-5170.) What is yarn? Fibre? (14-5168.) Bobbin? (14-5172.) Mule? (14-5173.) Warp? (14-5175.) Loom? (14-5176.)

(c) Linen.

How We Get Linen. (9-3317.)

Plants That Clothe Us. (8-2782.)

From what plant is linen made? What country raises the best flax? (9-3317.) What are some of the uses to which the flax

COURSE OF STUDY

QUESTIONS

- (d) Silk.
The Wonder of a Piece of Silk.
(15-5307.)
- (e) Leather.
Nothing Like Leather. (5-1549.)
The Story in a Pair of Shoes.
(18-6440.)
- (f) Fur.
Canada and the Fur Trade.
(12-4337.)
Fur-farming in Canada. (13-4693.)

plant is put? (8-2786.) What is the earliest knowledge we have of the use of linen? What country produces the best linen? (9-3317.) What other countries weave a good linen? (9-3216, 3317.) Explain briefly the steps in the manufacture of linen. (9-3318.)

What gives us our silk? (15-5307.) Upon what does the silkworm feed? (15-5308.) Can silkworms be raised in the U. S.? (15-5308; 9-3214.) Why must the silkworm die in order to give us silk? (15-5309.) What is it that the wisest man can do no better than a boy? (15-5310.) What country has been engaged in the silk industry for thousands of years? What countries in Europe have been great silk producers? (18-6529.) What is the annual world production? (18-6731.) What country is the largest user of silk? In what condition is the silk that is imported? (9-3214.) Why is this country the largest user of silk? What is the leading state in silk manufacture? What city leads the world in the manufacture of silk? (9-3216.) What is artificial silk made of? What country makes enormous quantities of artificial silk? (13-4828.) What is rayon? How is it made? (15-5310.)

How far back in history has leather been used? What strange things has leather been used for? From what does leather come? (5-1549.) Name some of the animals from which we get our leather. (5-1550; 9-3216.) What part of the world's leather does the U. S. produce? How much leather does the U. S. use? (9-3216.) Why is the supply of leather growing smaller? Why is leather constantly growing more expensive? (5-1551.) What kinds of leather are used for shoes? (18-6445.) What was the first foot-covering like? (18-6446.) What is the centre of shoe-manufacturing in America? What are the following: upper, sole, heel, last? (18-6442.) What substitutes are used to take the place of leather? (5-1551.)

In what part of the world does most of the trapping take place? Why? (12-4337.) What is the largest fur-trading company in the world? What portion of all furs is exported by this company? What skin is used as money in the fur country? (12-4340.)

COURSE OF STUDY

QUESTIONS

- (g) Rubber.
The Story of Rubber. (4-1404.)
2. HOW TO TEST CLOTHING MATERIALS.
How to Test for Pure Silk. (2-621.)
Simple Tests for Cotton, Linen, Wool and Silk. (5-1774.)
3. HOW OUR CLOTHES ARE COLORED.
How do the colors come to be in the cloth? (14-5168.) What plants produce dyes? (9-3152; 5-1627.) What are aniline dyes? Coal-tar dyes? (13-4531.)
4. SELECTION OF PROPER CLOTHES.
Why does a woolen garment keep us warm when a cotton or a linen one does not? Why should we wear wool next to our bodies in a changeable climate? (15-5577.) Why do we wear light things in summer and dark things in winter? (14-5086.) Why is tight clothing bad for us? (8-3013.) Why does starch stiffen clothing? (11-3978.) What do shoes do to our feet? (5-1677.) How may shoes injure our feet? (18-6446.)
5. CARE OF OUR CLOTHES.
The Right Way to Mend Things. (13-4737.)
How to Knit a Child's Sock. (13-4851.)
How to Make Old Clothes New. (11-3857.)
- What is the greatest enemy of the fur-hunter? Why is it called "The Evil One"? What is the best season for trapping? Why? Why is the trapper's life a lonely and dangerous one? Who make the best trappers? How are the furs finally disposed of? (12-4341.) What is the pay of the trapper for his winter's work? (12-4342.) Why are fur-bearing animals being raised? What animals are being raised for their fur? (13-4693.) What are some of the difficulties met with in raising foxes? (13-4696.) What city is the centre of fur-trading in the U. S.? (18-6426.)
- From what is rubber obtained? (4-1404.) How was rubber discovered? Where does the name India-rubber come from? (4-1405.) What was the greatest step in the development of the rubber industry? (4-1406.) Who discovered the process of vulcanizing? (4-1406; 19-7211.) What is meant by "vulcanizing"? (19-7211.) Name three articles of clothing made possible by this discovery. (4-1406.)
- What are simple tests for cotton; for linen; for wool; for silk? (5-1774.) How can we find out whether silk is pure? (2-621.)
- What is the chief cause of the dirt in our clothes? (4-1355.) What will remove grease-spots? (15-5335; 2-618.) When should stains be removed from clothes? What should you find out before trying to remove a stain? What is a safe remedy for nearly every variety of stain? Why should

COURSE OF STUDY

The Right Way to Clean Things.
(15-5335.)
How to Remove Stains. (2-618.)

QUESTIONS

chemicals be used with care? How can you remove grass stains? Iron rust? (2-618.) Why does hot water clean things better than cold? (4-1355.) If your clothes become splashed with mud, what is the best thing to do? How can you remove the following: dirt-marks; ink-spots? (15-5335.) Why does ink stain while water does not? (6-2252.)

THE STORY OF ELECTRICITY

1. WHAT IS ELECTRICITY?

- (a) Magnetism, frictional and current electricity.
The Pull of the Earth. (14-5177.)
What Gravitation Means.
(13-4795.)
How to Read the Mariner's Compass. (16-5984.)
How Magnetism Marks the Miles.
(1-76.)
The Story of Electricity. (16-5665.)
Men Who Found Electricity.
(4-1243.)
A Modern Wizard. (17-6133.)
Electricity at Home. (5-1773.)
What Makes the Electric Bell Ring?
(16-5801.)
How to Repair an Extension Cord.
(6-2045.)

Do magnets ever lose their magnetic power? (10-3581.) Why is a needle no heavier when magnetized? (11-3976.) What are magnetic lines of force? (16-5667.) What are magnetic poles? (16-5668.) How can the compass be turned from the north? (4-1251.) When was electricity first used? How was the first kind of electricity produced? What was the earliest substance known to show the property of attraction? (16-5665.) What was the first use to which electricity was put? (4-1253.) When did the world begin to take a real interest in electricity? (4-1243.) How did electricity get its name? (4-1244.) What man's name was given to the electric waves? (4-1254.) Name three men whose names are connected with electricity and tell what each did. (4-1243-54.) What are some of the big things that Edison invented or perfected? (17-6136.) What are the sources of electricity? (9-3212; 16-5673, 5674.) What is it that converts these sources into electricity? (16-5673.) What are the two kinds of electricity? (4-1246; 16-5666; 12-4290.) What are the two kinds of current? Of what use is each? How is the pressure of an electric current measured? (16-5674.) How long does it take for electricity to travel? (4-1248.) How is resistance measured? (16-5674.) When are high voltages used? What is a fuse? What does it do? How does the electric company know how much electricity you have used? (16-5675.) What produces electricity by chemical action? (4-1251.) What is a storage battery? Why is it important? For what is it used? (16-5676.) How does an electric battery work? (16-5672.) What is meant by joining cells "in series"? (16-5676.) Upon what does the voltage of a storage battery depend? Upon what does the capacity depend? Why must a storage battery be charged from time to time? What are two

COURSE OF STUDY

QUESTIONS

2 POWER BY ELECTRICITY.

- (a) The dynamo.
 How Water Is Transformed into Power. (15-5438.)
 Water Power of the World. (15-5429.)
 Niagara's Vast Supplies of Power. (15-5434.)
 Where Electric Power Is Generated. (17-6135.)
 The Biggest Generator in the World. (15-5437.)
- (b) The electromagnet.
 What Electricity Can Do. (16-5797.)
 One of the Biggest Lifting Magnets. (16-5796.)
 How the Giant Magnets Are Used. (16-5799.)
- (c) Electric trains, trolleys and elevators.
 How Elevators Go Up and Down. (4-1215.)

serious faults with storage batteries? (16-5677.) What is a Daniell's cell? (16-5672.) What happens when we press the button of an electric bell? (16-5798.) What makes the bell ring? (16-5801.) What are ions? (16-5672.) What are ohms? (16-5673.) What is an electro-scope? What does it do? What is the aurora borealis? What causes it? Over what parts of the earth is it most common? (16-5670.) Can electricity disperse a fog? (3-981.) Does electricity affect the growth of plants? (7-2609.) Suppose the insulation wears off the cord of your electric iron. What might happen? How would you repair it? (6-2045.) Describe an experiment with electricity that can be tried at home. (5-1773.) What would you do for a person who had received an electric shock? (16-5981.)

Give two advantages of making electricity by water power. (15-5429.) What is a dynamo? An armature? (16-5668.) What is the principle of the electric dynamo? (4-1252; 16-5667, 5674.) What things are made possible by the dynamo? (4-1252; 16-5671.) Where is the largest turbine in the world? What is a turbine? How does it work? (15-5429.) What does the expression "horse-power" mean? (2-689.) How is power carried to a distance? (14-5221.)

What is the electromagnet? (4-1252; 16-5672, 5798.) To what uses is the electromagnet put? (16-5799.) What is the great advantage of the electromagnet? (16-5798.) What two great purposes does the electromagnet serve? (16-5802.) How does it help the doctor? What device in your home depends upon it? (16-5798.) Mention some other devices that depend upon the electromagnet. (16-5800.)

What public conveyances are run by electricity? How does the trolley pick up the power which drives it? (16-5804.) At what two times in the running of a trolley is the demand upon the power greatest? What is the advantage of electric railways over steam railways? What is the "dead man's handle"? How does it increase safety on trains? Why can electric cars go down hills that would be impossible for horse-drawn cars? How is power supplied to electric trains? What are the difficulties in supplying power on long-distance railways?

COURSE OF STUDY

QUESTIONS

(16-5805.) In what way do automatic signals add greatly to the safety of travel? (16-5806.) What are the two types of electric elevator? (4-1217.) How high can an electric elevator go? (4-1214.) What would happen if the rope broke? (4-1218.)

(d) Lightning.

What does nature supply that is more powerful than any electric machine made by man? (16-5670.) What is the force in lightning that kills a man? (15-5620.) How is lightning caused by drops of rain? (8-2924.) How powerful is a flash of lightning? (16-5670.) Where does the lightning go when it reaches the ground? (16-5744.) Why does lightning strike some things and not others? (6-2125.) What is a lightning-conductor? How does it guard a house from danger? (16-5670.)

3. LIGHT BY ELECTRICITY.

- (a) The flash-light, search-light, arc light, carbon light, tungsten light, etc.
Electric Light and Heat. (16-5937.)
The Secret of the Electric Lamp.
(16-5939.)
How Your Flash-light Works.
(16-5664.)
How to Fix a Cellar Electric Light.
(6-2167.)

What is the poor man's treasure which once kings could not buy? (3-994.) Who invented the electric arc? What other important form of light did he invent? (16-5937.) How does the arc light work? (16-5937; 3-993.) What are the differences between a carbon and a tungsten lamp? Why is the tungsten lamp so popular? (16-5938.) How is a tungsten lamp made? (16-5939; 3-994.) What is carbon? Filament? (3-994.) What makes the glow in an electric light? (5-1608.) What gases are now put in many lamp bulbs? Why? (16-5939.) Can you fit up an electric light in your cellar or room? (6-2167.)

4. HEAT BY ELECTRICITY.

- (a) The electric furnace; welding; home appliances.
Electric Light and Heat. (16-5937.)
The Greatest Heat That Man Can Make. (16-5947.)

Where is the most intense heat made that man can produce? How high a temperature can be secured in an electric furnace? (16-5944.) Why is an electric furnace called an "electric sun"? (16-5948.) Why is an electric furnace expensive to run? What are its advantages? What is it used for extensively? (16-5946.) What substance is obtained from the air by means of the electric furnace? (16-5804, 5946.) Why is it so valuable? (16-5946.) What is welding? For what purposes is it used? For what other purposes is the electric furnace used? (16-5948.)

5. COMMUNICATION BY ELECTRICITY.

- (a) The Telephone.
The Wonder of the Telephone.
(17-6183.)

What do we mean when we say that we hear a sound? (17-6183.) Who invented the telephone? (17-6242.) How does a telephone work? (17-6184.) What happens when you call a number? (17-6185,

COURSE OF STUDY

COURSE OF STUDY

- The Pioneers of the Telephone.
(17-6247.)
- The Makers of Telegraphs, Telephones and Wireless.
(17-6235.)

- (b) The Telegraph.
 - The Wonders of the Wires.
(17-6062.)
 - How We Send a Telegram.
(17-6049.)
 - The Makers of Telegraphs, Telephones and Wireless.
(17-6235.)
 - The Men Who Invented Telegraphs.
(17-6239.)
 - The Wire That Runs Under the Sea.
(12-4293.)

- (c) Wireless Telegraphy.
 - Messages That Fly Through Space.
(17-6061.)
 - The Makers of Telegraphs, Telephones and Wireless.
(17-6235.)

QUESTIONS

6186.) What is "Information"? In what ways can you show good manners in using the telephone? (17-6186.) How are calls made between central offices? (17-6187.) How does the dial, or machine-switching, telephone work? What countries use the most telephones? (17-6188.) What uses are made of the telephone? (17-6183.) Where do the wires run? (17-6182, 6189.) How can you make a toy telephone? (17-6183.) What is the dictaphone? Why is it useful in business? (17-6136.) Can a picture be transmitted over a telephone line? How? (17-6056, 6060, 6188.)

What two men invented the telegraph? (17-6239.) How is a telegram sent from one city to another? (17-6049.) What would be the route of a telegram from Trenton to San Francisco? How is it possible for several messages to be sent over the same wire at the same time? (17-6052.) How is the message received at the other end? (17-6053.) What are the little white cups on the telegraph poles? (16-5962.) Why are the glass or porcelain insulators on the poles? (16-5666.) What are the wire hooks on the cross-bars of the poles? (7-2612.) Why do the telegraph wires vibrate or hum? (15-5614.) Whose work made the submarine telegraph possible? (17-6241.) How was the first cable across the ocean laid? What difficulties were met? (12-4295.) How many tons of copper are used in an Atlantic cable? (12-4296.) What is used to insulate the cable? (12-4296, 4298.) Why must a cable be so well protected? (12-4298.) How do men find where a fault is in the Atlantic cable? (1-188.) About how many miles of submarine cable are in use? How are electric messages sent under the sea? What large bodies of water are crossed by cables? What are codes? Why are they used? Of what advantage are they? How fast can messages be cabled? (17-6054.)

Who invented wireless telegraphy? (17-6247.) What is the big part that electricity plays in the life of a ship? (12-4416, 4421.) What are some of the uses of wireless on a ship? (12-4421.) How does the wireless tie the ship to the land? (17-6054.) Can trees receive a wireless message? (3-980.)

COURSE OF STUDY

QUESTIONS

- (d) Radio.
 The Wonder of Radio. (17-6363.)
 A Crystal Radio Receiving Set.
 (15-5510.)
 How to Make a Simple One-Tube
 Radio Set. (1-335.)
 A Short-Wave Radio Receiving Set.
 (13-4624.)
 How to Prevent Static in Your Radio.
 (17-6260.)
 Enjoy Your Radio on Auto Trips.
 (16-5977.)

What does radio mean? What do we mean by wave-length? What is "radio frequency"? What are the four requirements of radio? (17-6364.) What does the simplest receiving set require? (17-6366.) What lies behind a radio message? (17-6367.) What men helped to give radio to the world? What is broadcasting? (17-6368.) What are amateurs? Are you one? Why is some of the best work in radio being done by youthful amateurs? (17-6373.) What are some of the uses of radio? (17-6363.) Will radio replace wires? (17-6370.) How are radiograms sent and received? (17-6371.) Can pictures be sent by radio? When was the first one sent? How far was it sent? (17-6370.) How is it done? (17-6372.) Is it possible to use a radio set on an automobile? What is the most difficult problem in auto-radio? (16-5977.) What are the objections to installing radio sets on the dashboards of automobiles? (16-5978.) How would you build a crystal receiving set? (15-5510.) How would you make a one-tube set? (1-335.) How would you make a short-wave radio receiving set? (13-4624.) How would you prevent static in your radio? (17-6260.)

6. OTHER USES OF ELECTRICITY.

- (a) The X-Ray.
 The Rays That Show the Invisible.
 (16-5941.)
 The X-Rays and the Power Behind Them. (16-5945.)

Who discovered the X-rays? Why are they valuable? (16-5940.) What danger is attached to the use of the X-ray? (16-5942.) Why are the X-rays useful in surgery? (16-5940, 5941.) How are X-rays useful in other ways? (16-5943.) Why can we say that the X-rays have opened up a new world to us? (16-5944.)

- (b) Electroplating, electrotyping, the electric clock, etc.
 Telling Time in a Hundred Rooms.
 (16-5803.)

How is the silver put on our spoons and forks? (4-1308, 1311.) What is this process called? (4-1308.) What is its value? (16-5802.) What is electrotyping? What is its great advantage in printing? (9-3390.) Have we reached the end of the uses to which we will put electricity? (16-5806.)

TESTS (SCIENCE, 8TH GRADE)

Here are 30 easy questions. Answer 25. Count 4 for each correct one.

FALSE-TRUE

If the statement is true put a check after it; if false put a cross.

1. Australia manufactures the most woolen goods.
2. The United States is the largest user of silk.
3. Tight clothing is bad for us.
4. India is a leading fur-producing country.
5. The pressure of an electric current is measured in amperes.
6. Lightning is more powerful than any electric machine.
7. Argon and nitrogen are sometimes put in lamps to make them burn more brightly.
8. The United States uses the most telephones.
9. Edison invented wireless telegraphy.
10. Pictures can be sent by radio.

COMPLETION

Fill in the proper word or words.

1. is the most valuable fibre in the world.
2. Silk comes from the
3. make the best trappers.
4. A garment keeps us warm, but a garment does not.
5. A serious fault with a storage battery is that it is
6. The two kinds of electricity are and
7. The converts coal or water power into electricity.
8. The two kinds of current are and
9. The most intense heat that man can produce is the
10. The amount of current in a circuit is equal to the divided by the

SELECTION

Each sentence talks about three things. Only *one* of the three is correct. Draw a line under the correct one.

1. Most of our cotton is grown in (the northern part; the eastern part; the southern part).

TESTS

2. The best linen is made in (the United States; Ireland; Germany).
3. (New York; Chicago; St. Louis) is the centre of fur-trading in the United States.
4. (Woolen; linen; cotton) garments keep us warm.
5. An electric current is measured in (volts; ohms; amperes).
6. The largest turbines are in (the United States; England; France).
7. (The vacuum cleaner; the door bell; the electric iron) depends upon the electromagnet.
8. If the cable of an electric elevator broke, the elevator would (keep on going; stop; fall).
9. The electric light most commonly used in homes is the (arc light; carbon light; tungsten light).
10. The process of coating metal tableware with silver is called (electroplating; electrotyping; electrolysis).

SCIENCE, 9TH GRADE

Average Age, 14 to 15½

THE STORY OF HEAT

COURSE OF STUDY

1. FIRE.

- (a) Nature of fire; fuels; fire prevention.
 - Why Does the Fire Go Out? (11-3839.)
 - How Matches Are Made. (19-6965.)
 - Loads of Sunshine for Our Homes. (3-802.)
 - Coal and What It Can Do. (3-785.)
 - Where Gaslight Comes From. (2-635.)
 - Oil and What It Can Do. (13-4533.)
 - When the Fire Alarm Rings. (9-3157.)

QUESTIONS

How did men find fire? (9-3353.) How did they first get fire? What did they burn? How did they light them? (3-989.) Why did our ancestors keep a central fire burning all the time? When the tribe moved, what did they do with the fire? Why did savages worship fire? (19-6965.) What were the early ways of starting a fire? (19-6965; 1-308.) What is the simplest means of lighting a fire? (12-4376.) What do we use to-day? (19-6966.) Why does a match strike? (1-307.) Why is phosphorus put on the tip of the match? (19-6968.) Why does a match flare up when held upside down? (14-5087.) Why does a match go out when we blow it? How can we make it burn more briskly? (3-980.) What is fuel? What is common fuel for fires out of doors? (12-4376.) What is it that happens when a piece of wood is burned? (11-4096.) What is the most common fuel for the home? What does coal come from? (3-785.) Where is it found? What kind of coal is used in houses? What is it called? (3-786.) What products are obtained from coal? (3-794.) What does gas come from? (2-635.) How is it carried to our houses? (2-638, 645.) For what is it used in our homes? (2-638.) Why does oil burn more easily than some other things? (5-1751.) What are the three sources of oil? (13-4533.) Where did the oil come from in olden times? (3-996.) Where does it come from to-day? (3-996; 13-4534.) How did it get into the depths of the earth? (13-4535.) Where is oil found in the United States? How is oil wasted? (13-4538.) What is another name for oil? (13-4534.) In what ways is oil better than coal? (13-4538.) Where has oil taken the place of coal? Why will oil never completely take the place of coal? (13-4539.) How is oil brought to our towns? (13-4552.) What important products do we get from oil? (13-4539.) What is oil used for in the home? (3-996.) How did we get the word "kerosene"? (13-4534.) Why is kerosene useful in the home? (13-4539.) What makes flames dance in an open-grate fire? (14-5221.) Does smoke always come from a fire? (15-5517.) Why does celluloid catch fire so easily? (10-3477.) Why does not iron burn in the fire?

COURSE OF STUDY

QUESTIONS

2. THE NATURE OF HEAT.

- (a) What it is.
- (b) Sources: the sun, interior of earth, friction, burning, electricity.
- (c) Kinds of heat.
- (d) Specific heat.
- (e) References:
 - Hot Things and Cold Things. (15-5423.)
 - The Sun and Its Power. (9-3171.)
 - How Heat Works for Us. (15-5569.)
 - Electric Light and Heat. (16-5937.)
 - Inside the Wonderful Ball. (2-385.)

(4-1356.) Why is the fire hot? (16-5846.) What is our most useful servant? What does fire do for us? Why is fire like a slave ready to rebel? (9-3157.) What fires are the most to be dreaded? (9-3160.) Why are fire departments necessary? Why have they fewer fires in Europe than in America? How may fires be prevented? (9-3164.) Why is a fire pail filled with sand? (4-1452.) What are the dangers of fire in your home? In the school or public buildings? (10-3772.) How may each one of us help to prevent fires? (9-3164.)

What is heat? (15-5423, 5569.) Is it a kind of matter? Can it be weighed? (15-5423.) What is the source of all our heat? (15-5571; 8-2664; 9-3171.) Why is the sun "the great source of the power which sustains all life"? (9-3178.) What is the temperature of the sun? (9-3172.) Will the sun ever be as cold as the earth? (14-5220.) In what part of the earth is there great heat? (7-2313.) How do we know? (9-3208; 2-730; 7-2574.) How is a volcano formed? (8-2873; 2-385.) How can you make heat without fire? (15-5569; 11-3840.) What substance has the power to heat the earth for ages? (2-388.) What produces the most intense heat that man can make? (16-5944.) What is the greatest heat man can produce? (16-5944; 9-3172.) What happens in the fierce heat of an arc-flame? Why is this called an "electric sun"? Why must the welder screen his eyes? What are some of the uses of the electric furnace? (16-5948.) Can we add heat to a thing without making it hotter? Give an example. (16-5661.) What are the two kinds of heat? (13-4666.) What do we call a fixed quantity of heat? What happens to the heat when ice turns into water? (16-5662.) What is latent heat? When the temperature does not change by adding heat, what does change? What is sensible heat? (16-5661.) What happens to the heat which becomes hidden in a basin of ice and water? (16-5662.) What is specific heat? Why does the same amount of heat make one thing hotter than another? Why does the teapot keep hot so long? What is the specific heat of water compared with other things? What connection has this with "island climates"? (16-5663.) What is the law of conservation of energy? How can heat be changed into work, and work into heat? What is the machine that gives heat when we want it to give work? (15-

COURSE OF STUDY

COURSE OF STUDY

3. MEASUREMENT OF HEAT.

Thermometers. (7-2648.)

Heat and Temperature. (16-5661.)

4. EFFECTS OF HEAT.

(a) Expansion of solids, liquids, gases.

Making a Hot-air Balloon.

(10-3770.)

(b) Fusion: welding.

5. MOVEMENT OF HEAT.

(a) By conduction, convection, radiation.

QUESTIONS

5570.) Why can we never get a really perfect machine? (15-5571.)

What is the instrument that measures heat? How is it different from a thermometer? (16-5662.) What is a thermometer? What does it measure? What is temperature? Why is temperature not the amount of heat in a thing? (15-5572.) How is a thermometer made? What are the two most common kinds of thermometers? What is the freezing-point on each? The boiling-point? (15-5573.) If the glass tube and the mercury expanded at the same rate when heated, what would happen? How much more does the mercury expand than the glass? (7-2648.)

What happens to a thing when it is heated? (11-3977.) What happens to the molecules of water when the water is heated? (15-5424; 13-4666.) What happens to a piece of iron when it is heated? (12-4157.) Does a thing weigh heavier or lighter when hot or cold? How much space does it occupy compared with what it occupied before? (11-3977.) Why does hot water take up more room than cold water? (16-5960.) Where is the hottest water in a kettle? Where is the hottest air in a room? Why? (11-3977.) Why does hot water crack thick glass more easily than thin? (13-4828.) What is the metal that will stand great heats? In what very common and necessary household appliance is it used? (16-5938.)

In what ways does heat travel from place to place? (15-5426, 5427.) Why does a pin get hot if rubbed against a stone? Would a match-stick get hot? Why? (11-3840.) Why does iron feel colder than wood? (4-1451.) Why do we put a spoon in a glass before pouring in hot water? What kind of conductor of heat is a spoon? What kind of spoon would be best? Why will any metal spoon do? (9-3354.) Why are spaces left between the rails? (15-5569.) What materials are good conductors of heat? What are bad conductors? (15-5427.) How does the water in the kettle become heated all through? (15-5426.) How can a row of boys show the ways in which heat travels? (15-5427.) Why does a full bottle keep hot longer than one half full? (10-3475.) Why is the air warmer near the ground than up above? (8-2664.) Why does heat make things seem to quiver? (5-1751.) Why does a flame rise to a thing

COURSE OF STUDY

QUESTIONS

held above it? How can a poker help the fire to burn? (11-4133.) What is a thermos bottle? What kind of conductor must a thermos bottle be? What is there between the outer and inner walls of the bottle? In what way is a thermos bottle useful on outings? What does a thermos bottle do to hot things? To cold things? (17-6174.)

6. CHANGING A LIQUID TO A GAS.

(a) Evaporation.

Why does a wet plate get dry if we leave it alone? What do we call this? At what temperatures will evaporation occur? What conditions are best for evaporation? What are bad for it? (3-981.) How are our bodies kept cool in summer and warm in winter? (4-1418.) What happens when the weather is what we call "close"? (4-1419.) Why are some days hotter than others? On what kind of day will evaporation from our bodies be fast? On what kind of day will it be slow? When do we feel hot? When do we feel cool? (18-6556.) Why does heat crack wood? (17-6289.) Why does heat make paper curl? (9-3356.)

(b) The boiling point.

What is boiling? (8-3014.) What happens to water when it boils? (15-5424.) Does heating boiling water make it hotter? (16-5661.) Upon what does the boiling-point of water depend? What substances have high boiling-points? What substances have low boiling-points? (8-3014.) Where will water boil at less than 212° F.? Where must it have more than 212° F. to boil? When water is boiling why can it not be made hotter? (13-4595.)

7. THE HEAT OF THE BODY.

Where does the warmth in our bodies come from? (14-5218.) What do we mean when we speak of a calorie? How much heat is needed by the human body each day? How much food should we eat each day? (18-6694.) Why do our faces keep warm without clothes? What is the difference between *being* cold and *feeling* cold? (8-2720.) Is our blood cold when we feel cold? (7-2485.) What makes our teeth chatter when we are cold? (10-3475.) Why is it that if a cold object is passed over our skin, it feels colder in spots, and a hot object feels hotter in spots? (4-1419.) Why does boiling water feel cold when we put our hand into it? (14-4950.) Why are dark things warmer than light things? (3-877.)

8. COLD.

What happens when things cool? To what temperature will water condense when cooled? What happens to it below that

COURSE OF STUDY

COURSE OF STUDY

9. ICE.

QUESTIONS

point? Does ice take up more or less room than it did as water? Why does an iceberg float? How much of the ice is above water? How much below water? (4-1355.) Why does a piece of ice make a drink colder? What happens to the heat that was in the drink? (13-4827.) Why is a snowflake lighter than a raindrop? (9-3101.) How does salt melt snow? (12-4505.) What is frost? (14-4905.) Why will windows of cold rooms show better frost pictures than windows of warm rooms? (14-4906.) Can anything boil when it is cold? (8-3014.) Can ice be cooled? What happens to its molecules as it is cooled? Can a thing be cooled until its molecules will not move at all? What is the lowest temperature to which matter can be reduced? (15-5424.) What is that temperature called? What is matter like at absolute zero? Why do we believe that matter does not disappear at absolute zero? What is liquid air? What does it look like? How cold is it? What is it used for? What is constantly happening to it? What is solid air? (15-5425.) How near have we come to absolute zero? Why is it hard to get all the heat out of a thing? (15-5426.)

THE STORY OF LIGHT

COURSE OF STUDY

1. THE NATURE OF LIGHT.

- (a) How caused; speed; intensity; uses; darkness.

Light and What Makes It.

(16-5807.)

A Fairy-fountain Experiment.

(2-627.)

How Do We Know the Speed of Light? (10-3473.)

What a Light-year Is. (11-3925.)

The Men Who Gave Us Light.

(3-989.)

Where Gaslight Comes From.

(2-635.)

Oil and What It Can Do. (13-4533.)

Electric Light and Heat. (16-5937.)

Why Can't I See in the Dark?

(5-1807.)

Does Light Die Away? (10-3577.)

QUESTIONS

What is the modern theory of light? What are atoms? What are electrons? If we compare the electrons to planets and the atoms to suns, what are three differences between the movements of electrons and the movements of planets? (16-5808.) Do light waves move like sound waves? (16-5812.) Why will a ray of light not spread out and fill a room? (16-5811.) What could you compare the movement of a light wave to? (16-5812.) Are light waves and electric waves alike? (17-6080.) Is all light the same? (11-3922.) How are different kinds of light produced? (16-5809.) From what kind of bodies does light usually come? Is there such a thing as cold light? (12-4157.) What is meant by phosphorescent light? (2-586.) Do we see things in the distance or the light that comes from them? (2-458.) Why is the world light when the sun is behind clouds? (16-5744.) Why do metals let light through when beaten thin? (5-1750.) Does light exert pressure? (16-5809.) What is the pressure of the

COURSE OF STUDY

QUESTIONS

sun's light on the earth? (10-3665.) What chemical action of light is evident in the home? (10-3683.) Why do things turn yellow with age? (14-5085.) Why does the sun fade carpets and not flowers? (4-1354.) Does light move? How fast does it travel? (16-5807.) How do we know the speed of light? (10-3473.) How does light make its journey from the sun to the earth? What becomes of the light during the eight minutes it is traveling from the sun to the earth? (13-4666.) Why does the air not stop the light of the sun? (15-5620.) As we move away from light, what seems to happen to its power or intensity? (17-6081; 10-3577.) What is the law for the intensity of light? (17-6081.) Does light die away? (10-3577.) Does light enter our bodies? Is it necessary to keep us alive? (6-2186.) What is the effect of light upon our health? Why should we live in the light as much as possible? (4-1415.) What is the effect of light upon plants? (2-745; 4-1475.) How is light useful in medicine? (15-5492.) How does light measure distances? (9-3033.) What is a light-year? (11-3925, 4038.) What are some of the ways of obtaining artificial light? (3-989; 2-635; 13-4540.) What is darkness? (5-1807.) Why are the shadows longer at the end of day? (4-1230.) Why is it dark at night? (1-78.) When is it darkest? (12-4506.) When we say a place is dark is there really no light present at all? Could cats see if it were entirely dark? Why can cats and tigers see so much better than we in places with very little light? (5-1807.)

2. REFLECTION OF LIGHT.

How to See Through a Brick.
(12-4377.)

Mirrors in Which to See Ourselves.
(18-6752.)

Can we see through a brick? How is it possible? What is the law of light upon which this depends? (12-4377.) Why do some substances absorb light and others not? When a substance absorbs light, what happens to the light? How does light pass through a pane of glass? Is there any substance that lets all the light through? What proof have we? What do we call the turning back of light by a substance? What is the law of reflection? (17-6081.) How does still water reflect a distant scene? (3-978.) How do clouds stop sunlight? (4-1453.) Why does the sea look blue? Why does the color of the sea change so much and so often? (6-2124.) How are we able to see lightning below the horizon? (8-2924.) Why do we see in a mirror things not in front of it? (4-1230.) Why does a face in a mirror seem crooked? (17-6285.)

COURSE OF STUDY

QUESTIONS

3. REFRACTION OF LIGHT.

(a) Nature of refraction.

How a Magnifying Glass Makes Things Bigger. (2-462.)
Seeing What Is Not There. (5-1806.)

(b) The eye.

The Story of the Eye. (10-3683.)

(c) The camera.

Photography Without a Camera.
(8-2739.)

Using the Camera Outdoors.
(13-4617.)

Making Moving Pictures. (18-6593.)

Photography on a Table. (18-6517.)

(d) The telescope.

What We Know About the Stars.
(11-3921.)

Making a Simple Telescope.
(12-4265.)

What is a concave mirror? (13-4669.)
What is used for mirrors? What was formerly used? What is poured on the glass? What does this do to the light waves that strike the glass? Why is it better than mercury and tin? (18-6752.)

What is refraction? (10-3686; 17-6081.)
Describe an experiment to show refraction of light. (2-622.) What is a lens? (13-4669.) From what are lenses made? What do we call this bending of the light waves by the lenses? What is a convex lens? (13-4670.) Why does water always seem shallower than it is? (2-688.) Why do houses seem crooked when we look across a fire? (5-1752.) What is a mirage? (5-1810.) How is a mirage caused by refracted light? (5-1806.)

Can we always believe our own eyes? (8-2746.) How can we judge real or pictured distance? (3-1116.) How does the eye change the course of light? (17-6081.) Why cannot we see very small things with our naked eye? (14-4952.) Why do we see a black spot in the sky after looking at the sun? (14-4950.) What is meant by "errors of refraction"? What is meant when we say that a person is near-sighted? Far-sighted? What is the cause of each? How is each condition remedied? Why do people need glasses? What do glasses do for people? (10-3686.) Do a horse's eyes magnify? (17-6178.) Explain the following terms: epidermis (10-3683), convex, retina, cornea, iris, pupil, aqueous humor (10-3684), lens (10-3685).

Why is it that the camera can see things that our eyes cannot see? (17-6080.) Can we take pictures without a camera? (8-2739.) Why is the camera useful in astronomy? (1-288.) Is there any motion in "moving" pictures? (18-6596.) How are the moving-picture plays made? How are the pictures made? Explain the working of the moving-picture camera. (18-6597.) What happens to the films after they have been exposed? (18-6598.) How are trick pictures made? (18-6602.) How are the cartoons made for the films? (2-456.)

What is a simple telescope? Explain how to make a simple telescope. (12-4265.) Who made the first telescope? (13-4671; 10-3411; 1-280.) Why is the telescope important? (1-280.) Why do we never see the stars exactly where they are? (17-6082.)

COURSE OF STUDY

QUESTIONS

- (e) The microscope.
The Story of the Microscope.
(13-4669.)
Peeps Through a Microscope.
(1-218.)
4. COLOR.
Where Color Comes From.
(17-6079.)
The Eye's Wonderful Curtain.
(11-3804.)

How does the lens make things appear larger in the microscope? (13-4670; 2-462.)
What are some of the uses of the microscope? (13-4670.)

What is color? (17-6079.) How is it made? (17-6079; 11-3804.) Of what colors is white light made? (11-3804.) Does all light contain the same colors? What use do we make of this fact? What happens to light when it passes through a prism? Why is this possible? (11-3922.) What makes us see different colors? (11-3804.) What causes the rainbow? Where do the colors in the rainbow come from? (16-5810.) How does the eye see all the colors of the rainbow? (11-3804.) How many colors has the rainbow? (7-2486.) What is the band of colors in the rainbow called? How can we get the colors out of a beam of sunlight? (16-5810.) What is the study of the band of colors called? What does it tell us? How can a piece of glass tell us what the stars are made of? (16-5811.) When we are looking at a rainbow can people see the other side? (6-2251.) How does refraction produce color? (17-6082.) What makes the colors of the sunset? (18-6552.) Have things any color at night? (8-2874.) Is there a color our eyes cannot see? (10-3579.) Why are dark things warmer than light things? (3-877.) Why do dark things look smaller than light things? (6-2122.) What makes the fire change color? (16-5746.) Why do the hills look blue at a distance? (9-3102.) Why, if we look at red, do we afterward see green? (2-687.) Why does a piece of blue cloth look black in a red light? What is the difference between luminous and non-luminous things? How are colors produced by reflection? (17-6082.) Why is foam white? (17-6176.) Why is the snow white? (18-6694.) Why is the sky in Italy so blue? (17-6179.) Is there any color in the sea? How far down into the sea can light penetrate? Do all colors penetrate the same distance? Which color goes down farthest? Is there any light at the bottom of the sea? Why? (11-3841.) Why do some colors change in artificial light? (7-2360.)

THE STORY OF SOUND

COURSE OF STUDY

1. THE NATURE OF SOUND.

- (a) Cause, speed, mediums of sound, sympathetic vibration.

The Waves of Sound. (17-6313.)

The Behavior of a Sound.

(19-6851.)

A Box That Draws Voice Pictures.

(17-6145.)

QUESTIONS

What is sound? (12-4156.) How is sound produced? (18-6437.) Does sound travel in straight lines? (2-586.) How do the waves of sound move? (18-6437.) What is the difference between light and sound waves? (16-5811.) How are they different from the waves of water? (18-6437.) What do we mean by the length of a sound-wave? (8-3016.) How can you draw a picture of a sound on a sheet of paper? (18-6439.) What do we call the thing through which sound passes? What is the common medium of sound? What are other mediums? Can there be sound where there is no matter? How can we prove that sound passes through the air and not through ether? (17-6313.) Why do we see the puff of smoke from a distant cannon some seconds before we hear the report of the explosion? (17-6314.) How fast does sound travel? Do the speed and direction of sound ever change? (2-586.) What might cause a change? (2-586; 17-6314.) Which is the best and which the worst of the following mediums: air, steel, water? (17-6313.) Why will a sound travel faster through iron than through air? (17-6314.) How much faster does sound travel in water than in air? Through what substance does sound travel the fastest? How much faster than through air? (2-586.) Why do we hear well on a clear and frosty night? (17-6314.) Is it true that sound goes on forever? (12-4399.) How does it travel on a fine day? On a windy day? In a fog? (2-586.) Why does fog deaden sounds on the sea? (4-1451.) What has the greatest effect on sound? (2-586.) Does sound go through glass? How? (11-3977.) How can sound come into a room through a wall? (12-4279.) Why does a noise occasionally break a window? (7-2611.) Why does the kettle sing? (11-4134.) How can men watch a sound playing with fire? (19-6855.) Why does a stick make a noise when swung in the air? (12-4281.) Why does a tuning-fork sound louder when it touches wood? (14-4952.) What makes the sea roar? (9-3102.) How is sound made by the wind? (11-3841.) Upon what does the loudness of a sound depend? (18-6438; 19-6854.) What is the law for the loudness of sound? (17-6314.) When we sing a note to the piano, why does it answer? (5-1750.) What do we mean by "sympathetic vibration"? (19-6852.)

COURSE OF STUDY

2. HOW WE MAKE AND HEAR SOUNDS.

The Voice-box and Its Uses.
(10-3555.)

The Marvel of Hearing. (9-3305.)

QUESTIONS

Where is the voice-box located? By what other names is it known? What is its object? Have animals voice-boxes? What are the tiny cords in the voice-box called? (10-3555.) What really happens when we sing? Why is the voice much more marvelous than a piano? (10-3556.) Why is it that we use different notes in speaking? When we speak of different kinds of "color" in our voices, what do we mean? How are we able to put *color* into our voices? (10-3557.) What happens when anybody speaks in a *singsong* way? Why do different people have different kinds of voices? Why do voices lose their beauty? (10-3558.) Can we tell anything about the character of a person by his voice? Why should we cultivate a soft and gentle voice? How can we do it? How can we make different sounds by moving the voice organs? (10-3559.) Why does a foreigner seldom speak English perfectly? What is the difference between a vowel sound and a consonant sound? Are there sounds that nobody is able to sing? Why does a singer like to sing in Italian? (10-3560.) Why is it important to a speaker to pronounce consonants well? Of what help are the tongue and the teeth in pronouncing words? (10-3561.) What do we mean when we say that we hear a sound? (17-6183.) Where do we really hear? (9-3305.) In what part of the brain is the sense of hearing? (8-2947.) What organ helps us to hear sounds? (9-3305.) What is the purpose of the outer ear? What advantage have animals over us in the use of the outer ear? What is the purpose of the wax in our ears? (9-3306.) If we get anything into the ear why should we call the doctor at once? Why may a cold in the head cause deafness? (9-3308.) Can you tell about the journey of a sound from the outside to the brain? (9-3310.) Can a fly hear ordinary sounds? Is this true of other insects also? (11-3978.) Why are blind people so quick at hearing? (6-2125.) Why can we hear better when we shut our eyes? (12-4279.)

3. THE PITCH OF SOUND.

What do we mean by the pitch of a sound? (10-3555.) Upon what does the pitch of a sound depend? (10-3556.) What is the law for the pitch of a sound? Why will pouring a little water into a glass tumbler change its pitch? (15-5333.) How is difference in pitch produced in a piano? In a violin? In the voice? (10-3556.) What is the siren? Why is it the best instrument

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

for studying the pitch of musical sounds? How is the siren made to produce its shrill sound? Do we hear all the sounds that are made? What animals can hear very high-pitched notes? (18-6439.) Why are high notes always heard better than low notes? (18-6438.) Why does the pitch of a train whistle rise as the train approaches us? How does it sound to the engineer? How does it sound to us as the train disappears? Why? (11-4132.)

4. THE REFLECTION OF SOUND

Can sound be reflected? What is the law for the reflection of sound? What is the angle of incidence? The angle of reflection? (17-6315.) What makes an echo? What are the best places for an echo? Why must we stand a distance from the place throwing back the sound? (12-4504.) What is the best example of sound causing an echo? What reflects thunder? Where are echoes a nuisance? What devices are used to prevent them? How was it possible for two men to talk to each other when a mile apart? (17-6316.) Why do our voices sound hollow in an empty hall? (6-2122.) Why do sounds seem different in the open air when compared with sounds in a closed room? Why do our voices sound different in different places? (17-6315.) Why can we hear a noise like waves in a seashell? (5-1608.) Why can we hear a whisper across the dome of St. Paul's? (4-1450.) Why do empty vessels sound more than full ones? (5-1810.) Why does my voice seem louder if I put my hands over my ears? (18-6554.)

5. MUSIC.

- (a) The nature of music; musical instruments.

Music and Noise. (18-6437.)

Wonderful. Wonderful Music.
(18-6695.)

How We Got the Piano. (5-1795.)

Music from Drinking-glasses.
(15-5333.)

Musical Instruments from Old Bottles. (17-6387.)

What makes the difference between the sounds we call noises and those we call musical notes? (18-6438.) What is melody? Harmony? (18-6695.) What are discords? (19-6855.) What determines whether music is harmony or discord? (18-6695.) How are discords used to improve harmony? (19-6855.) What is the musician's A B C? What is the common chord that moves men all over the world? (18-6696.) Why is the sound made by the bow of a violin richer than the sound made by plucking the string? What are overtones? What are free vibrations? In what two ways does a string behave? Give an example of each? What are resonators? What do they do? (19-6851.) Why does a good piano make better music than a bad one? (19-6852.) How can a jug of water act as a resonator? Who first made a study of the tuning of resonators? What is the most wonderful of

COURSE OF STUDY

QUESTIONS

musical instruments? Why? What make the resonators for the human voice? How are they different from other resonators? What is the principal resonator for the lower tones of the voice? What are the principal resonators for the upper tones? Why is the power of tuning our resonators of the greatest importance? (19-6853.) How is sound made on a piano? (5-1796.) What happens when the piano is out of tune? (18-6698.) What was the first stringed instrument? (13-4594.) What is the kind of tunes that children like and understand? What is the secret of the violin and its strings? Why is the same note different on different instruments? (18-6699.) Why do different instruments make different sounds? What is the secret of the wonderful violins of olden days? Who were some of the greatest makers of violins? (18-6700.) Why does a violin string change its note when held down? (8-2719.) Why do musical sounds come from the organ? (17-6290.) How are the overtones produced in the pipes of an organ? What are "nodes"? Why do vibrating strings move more quickly in some parts than in others? (19-6854.)

6. OTHER DEVICES BASED ON SOUND.

- (a) The phonograph, dictaphone, etc.
The Talking Machine. (1-261.)

What makes the talking machine talk? How are the vibrations of sound recorded? What is the "master record"? Of what is it made? Why? (1-261.) Why does a horn make the phonograph louder? (14-5224.) What is the dictaphone? (1-264, 265.) Where is it used mostly? Why is it important? (1-265.)

TESTS (SCIENCE, 9TH GRADE)

Here are 30 easy questions. Answer 25. Count 4 for each correct answer.

FALSE-TRUE

If the statement is true put a plus (+) after it; if false put a minus (—).

1. We can make heat without fire.
2. We can add heat to a thing without making it hotter.
3. The boiling point of water is always 212° F.
4. Glass lets all the light through that strikes it.
5. We cannot always believe our own eyes.
6. Refraction is the turning aside of light by a mirror.
7. Sound travels in straight lines.
8. Sound can be reflected.
9. The pitch of a sound depends upon its loudness.
10. Our sense of hearing is in the brain.

COMPLETION

Fill in the proper word or words.

1. The two kinds of heat are and
2. When a thing is heated it
3. Heat travels either by or or
4. We study the stars through a and microbes through a
5. Light travels at a speed of miles per second.
6. A mirage is caused by light.
7. The band of colors in the rainbow is called a
8. In pronouncing sounds we are helped by our and
9. When light strikes a mirror, the angle of equals the angle of
10. The most wonderful of musical instruments is the

SELECTION

Each sentence talks about three things. Only *one* of the three is correct. Draw a line under the correct one.

1. The most common fuel is (gas; oil; coal).
2. The instrument that measures the amount of heat in a substance is called a (barometer; calorimeter; thermometer).
3. The hottest air in a room is (at the bottom; in the centre; at the top).

TESTS

4. (Iron; rubber; wood) is a good conductor of heat.
5. A light-year is (the distance light travels in a year; the time it takes light to travel from the sun; the time it takes light to travel to the nearest star).
6. If I stand five feet from a light and then stand ten feet from the light, its brightness will be (the same; one-half as great; one-fourth as great).
7. If a cannon is fired in the distance, I will (hear it before I see it; see it before I hear it; see and hear it at the same time).
8. (Air; steel; water) is the best conductor of sound.
9. We can hear best on a (clear and frosty night; foggy night; hot night).
10. When musical sounds interfere with each other we call that (harmony; melody; discord).

BIOLOGY, 9TH GRADE

Average Age, 14 to 15½

PART I

COURSE OF STUDY

Definition of Biology: The study of living things.

1. INTRODUCTION.

What is meant by *sensation* (11-4065-68), *motion* (13-4665-68), *respiration* (4-1325), *digestion* (6-2083-85), *absorption* (6-2086), *circulation* (4-1209-13), *assimilation*.

2. MATTER. (12-4155-59.)

Three states. (12-4157-58.)

Characteristics of common elements carbon, oxygen, hydrogen, nitrogen, water, carbon dioxide. (12-4289-92.)

Elements present in food compounds. (6-2185-87.)

Changes in matter (chemical and physical changes). (12-4403-06.)

Forms of energy. (13-4666-67; 15-5569-70.)

Conservation of energy. (13-4667; 15-5570.)

3. THE GREEN PLANT AS A LIVING THING. (1-329; 2-613-16.)

Photosynthesis. (2-616; 11-4094.)

4. PHYSICAL BASIS OF LIFE.

Protoplasm. (2-661-64.)

The cell.

QUESTIONS

What is meant by sensation? (11-4065-68.) Illustrate. What is the process of digestion? (6-2083-85.) Respiration? (4-1325.) Do all things move in space? (15-5517.) When we swing a rope why does it go on swinging? (10-3734.) Why does a falling object turn around? (13-4827.) Do we know any kind of matter not found on earth? (14-5084.) What are the three states of matter? (12-4157-58.) Name some conditions under which carbon is found. (2-664; 12-4406.) Exactly what do we mean when we say that oxygen is given off by green plants? (2-664.) What are nutrients? (2-613.) Illustrate. What is the difference between chemical and physical change in matter? (12-4403-06.) What are some of the commonest forms of energy? (13-4666-67; 15-5569-70.) Describe the process of photosynthesis. (2-616; 11-4094.) Illustrate. Why is new bread less digestible than old? (7-2486.) What is *protoplasm*? (2-663-64.) What is a *cell*? (2-661-63.) Illustrate. Why do we remember Robert Hooke in this connection? (13-4669.)

PART II

1. INSECTS. (17-6063-78; 18-6721-34.)

Study of

(a) The grasshopper. (17-6068.)

(b) The butterfly. (18-6525-32.)

Economic significance of the grasshopper, bee (17-6221-23), tusssock moth, cotton boll weevil (8-2784; 18-6729.)

Methods of control. (18-6722-23; 11-4007.)

Relation of mosquitoes to malaria and yellow fever. (15-5488, 5490-91; 17-6417-18.)

Extermination.

Relation of the house fly to disease. (17-6420-21.)

Control.

2. CRUSTACEANS. (16-5947-50.)

Crayfish.

Why does our government make every effort to destroy the cotton boll weevil? (8-2784.) Give the life story of this insect. (18-6729.) Tell some of the measures used to combat it. (18-6722-23; 11-4007.) Describe the life of the bee and the division of labor in the hive. (17-6221-23.) How do bees aid agriculture? (18-6721-22.) Give the life history of the house fly. (17-6420-21.) What connection has he with disease? Give some other examples of diseases transmitted by insects. (15-5488, 5490; 17-6417-18.) What measures have been taken to control them? (17-6418; 18-6733; 15-5488-90.) Why is it important that the fly be controlled? Give an example of a crustacean. (16-5947-50.) How is the fish adapted for living in his environment? (15-5540-42.) How is the frog adapted for jumping, food-taking and swimming? (15-5453-56.) Why are birds valuable to the farmer? (8-2762;

COURSE OF STUDY

3. FISHES. (15-5540-42.)
Adaptation to environment.
4. FROG. (15-5453-56.)
Adaptation for jumping, swimming
and food-taking.
5. BIRDS. (8-2757-62.)
Food-taking, drinking, locomotion.
Economic importance. (8-2762;
9-3288.)
6. MAMMALS. (1-258-59.)
Characteristics. (7-2591.)
Types of mammals—primates, car-
nivora, hoofed animals, gnawers.
7. ONE-CELLED ANIMALS.
Protozoans. (2-661-63.)
The amœba.

QUESTIONS

9-3288.) Which birds are harmful? What are some laws that have been passed for the protection of birds? (14-5018.) What are the chief characteristics of mammals? (7-2591.) Give at least two examples of each of the different types of mammals. What are protozoans? (2-661-63.)

PART III

1. GENERAL STRUCTURE OF THE HUMAN BODY. (13-4618-19; 5-1673-77; 5-1559-63.)
Skeleton.
Important organs.
Muscles. (5-1803-05.)
2. RESPIRATION. (4-1325-31.)
Location, structure and functions of the lungs and air passages.
The cilia, action of ribs and dia-
phragm in breathing.
Good breathing habits. (15-5332.)
Uses and necessity of oxygen.
(3-805-06.)
3. NERVOUS SYSTEM. (8-2837-41.)
Principal parts of the nervous sys-
tem:
Brain. (9-3059-62; 8-2682-83;
16-5957-58.)
Spinal cord (5-1562-63), and
nerves.
Functions.
Effects of alcohol and narcotics on
the nervous system. (8-2682-
84.)
Drugs.
Care of the eyes (10-3683-86; 11-
3801-04) and ears (9-3305-10.)
4. FOODS. (6-2185-88.)
Minerals. Vitamins. (8-2802;
5-1624.)
Value of common foods as tissue
formers, as fuel and body regu-
lators. (7-2568-69; 7-2423-25;
10-3416.)
Meaning of calorie. (18-6694.)
Principles involved in cooking.
(4-1450; 11-3842.)
Dangers in impure water and milk.
(2-557-58; 7-2326.)

Learn the general structure of the human body. (13-4618-19; 5-1559-63, 1673-77.) Name ten adaptations in the human skele-
ton. What is the thoracic region? What
are extensor and flexor muscles? (5-
1803-05.) What are the organs of respira-
tion? (4-1325-31.) What is the pleura?
Describe the movements and their results
that go to make up the process of breathing.
(4-1325-31.) What lessons are here for us
in breathing habits? (15-5332.) Ventila-
tion? Bathing? Why is oxygen necessary?
(3-805-06.) What are the principal parts
of the nervous system? (8-2837-41.) What
are some of the effects of alcohol upon the
nervous system? (8-2682-84.) Why should
we be very careful what patent medicines
we buy without a doctor's advice? Give
some general rules for the care of the eyes.
What are some symptoms that indicate that
the eyes need attention? (10-3686.) What
are vitamins? What foods give them to us?
(8-2802; 5-1624.) What are the chief uses
of food in maintaining a healthy body? (18-
6694.) What is a calorie? (18-6694.)
What dangers lurk in impure water and
milk? (2-557-58; 7-2326.) Give specific
examples of diseases that may be transmitted
through these agencies. (3-934.) Describe
the history of the teeth of a human being.
(6-1929-31.) What is the relation of teeth
to health? What is the function of saliva?
(6-1932.) Where does digestion begin? (6-
2083-86.) What necessary elements do the
proteins contain? (6-2187.) Why are some
fats necessary? (6-2085-86.) Give some
general rules for diet. Is alcohol a food?
(8-2682.) Is it a poison? (2-559.) Illus-
trate. What effect has alcohol upon diges-
tion? (2-559.) What makes the heart beat?

COURSE OF STUDY

COURSE OF STUDY

5. **DIGESTION AND ABSORPTION.** (6-2083-86.)
 Importance of teeth.
 Description and care of teeth. (6-1929-31.)
 Functions of saliva. (6-1932.)
 Importance of thorough mastication of food. (6-2083-86.)
 Digestion of proteins. (6-2085, 2187-88.)
 Digestion of fats. (6-2085-86.)
 Effects of alcohol and narcotics on digestion. (2-559; 3-937.)
6. **CIRCULATION AND ASSIMILATION.** (4-1209-13.)
 Structure of blood. Corpuscles. (3-803-06, 935-36.)
 The heart—shape, size, functions, position. (4-1209-13.)
 Arteries. (4-1209, 1213; picture, 13-4619.)
 Veins. (4-1209-15; picture, 5-1805.)
 Capillaries. (4-1209, 1213.)
 Changes in composition of blood as it passes through various organs of the body.
 Effect of alcohol and narcotics on the organs of circulation. (3-937.)
 Ductless glands. (9-3222-24.)
 Thyroid and adrenal.
7. **WORK OF KIDNEYS** (4-1213), **LUNGS** (3-805-06), **INTESTINE** (6-2085), **SKIN** (4-1415-20)
 Importance of bathing.
8. **BACTERIA.**
 General characteristics. (2-437-39, 557-58.)
 Growth. (2-438.)
 Methods of killing. (3-935-36; 2-559.)
 Discovery. (13-4670; 15-5483.)
9. **HEALTH.** (15-5482-85.)
 How to preserve health.
 How to resist disease. (15-5491-92.)
 Cause of disease. (2-558-59.)
 Natural and acquired immunity. (15-5492; 8-2728; 7-2485.)
 Sanitation.
 In the home and in the environment.

QUESTIONS

(5-1752.) Describe the structure of the blood. (3-803-06, 934-36.) What is its function? Where is the heart? (4-1209-13.) What is its size, shape, function? What is the pericardium? Trace the circulation of the blood in the human body. (4-1210-12.) What is the difference between arteries and veins? (13-4619.) What are capillaries? (4-1209.) What are the most important of the ductless glands? (9-3222-24.) Why are these important? How does the kidney do its work? (4-1213.) What is the function of the lungs? (3-805-06.) Explain the mechanics of breathing. Why is the pancreas considered the most important digestive gland? (6-2085-86.) Are bacteria always harmful? Explain your answer. (2-439, 557-59.) When and by whom was the relation between disease and bacteria discovered? (2-559.) What are the best methods of controlling the growth of bacteria? (15-5483-84; 3-935-96.) How does disease spread by infection? (8-2872.) Explain the difference between natural and acquired immunity against disease. (2-461; 7-2485.) Name some ways of acquiring immunity. (8-2728; 7-2485.) Why is sanitation the business of every good citizen?

PART IV

1. **THE LIVING PLANT.** (2-503-10, 613-16.)
 General structure—leaves, stem (trunk), root, flower and fruit.
 Leaves—cell—protoplasm, general structure, parts. (2-614-16.)

Describe the structure of a simple leaf (of a dicotyledonous plant). (3-885.) Explain the meaning of chlorophyll. (6-2188; 2-615-16.) Sum up the work done by leaves for the plant. (2-614-16.) What is transpiration? (2-616.) What happens when a

COURSE OF STUDY

QUESTIONS

- Work of leaves. (2-614-16.)
- Carbohydrate manufacture, transpiration, assimilation, respiration.
- Necessity of light. (2-616.)
- Necessity of chlorophyll. (6-2188.)
- Transpiration (Liberation of water vapor from leaves).
- Necessity of respiration and assimilation in leaves.
- Economic uses of leaves. (2-616.)
- The algæ. (10-3721-22.)
- Stems. (2-506; 3-885.)
- Kinds, structure, functions, adaptations.
- Dicotyledons. (3-885.)
- Uses of stems to man.
- Roots. (2-612-14, 744-45.)
- Structure of the root system of a plant. (Root hair.) (2-614; picture, 504; 3-874.)
- Functions of roots.
- Nutrients stored in fleshy roots.
- Uses of roots to man. (7-2412; 5-1624.)

2. FLOWERS AND FRUITS.

- (3-1013-16; 2-506-10.)
- General structure of parts of flowers.
- Function of each part.
- Ovules—pollen.
- Pollination and fertilization. (5-1609; 15-5613.)
- Conservation of wild flowering plants.
- Types of fruits.
- Parts of the flower represented in fruits.
- Adaptations of fruits and seeds for dispersal. (3-1083-87.)
- Value of common fruits to man. (6-2187.)

3. FORESTS AND FOREST PRODUCTS. (8-2803-10.)

- Importance of forests. (7-2416; 11-4094-95; 8-2680.)
- Need of conservation. (8-2803-04.)

BIOLOGY AND PROGRESS

- Darwin. (2-593.)
- Pasteur. (15-5481; 2-559.)
- Koch. (15-5484; 2-559.)
- Audubon. (19-7052.)
- Harvey. (3-939; 4-1209.)
- Burbank. (4-1388-90.)

leaf falls from a tree? (13-4595.) Why do leaves change color in autumn? (15-5520.) What plants are known as green algæ? (10-3721-22.) Where are they found? Where are yellow, brown and red algæ found? Describe the structure of a cross section of a dicotyledonous stem. (3-885.) What are the chief uses of stems to man? What are root hairs? (2-614; 3-874.) What is their function? What are the chief uses of roots to man? (7-2412; 5-1624.) Why do the roots of a tree grow downward? (3-878.) What are the parts of a flower? (3-1013-16.) What is pollen? (2-506, 509; 3-1014; picture, 2-500.) What part does it play? (2-506; 3-1013.) What responsibility have we toward the wild flowers? Describe the process of the formation of fruit. (2-510.) Make a drawing of the cross section of an apple. (2-507.) How are seeds dispersed? (2-510; 3-1083.) Why are forests so important? (7-2416.) What effect have they on streams? In preventing erosion? In forming and improving soil? (8-2680.)

Tell something of the lives and services to humanity of Darwin (2-593), Pasteur (15-5481; 2-559), Koch (15-5484; 2-559), Audubon (19-7052), Harvey (3-939; 4-1209), Burbank (4-1388-90).

WEIGHTS AND MEASURES

TABLES FOR QUICK AND READY REFERENCE

The abbreviations commonly used are given with each weight or measure

AVOIRDUPOIS WEIGHT	
16 drams, dr.	= 1 ounce, oz.
16 ounces	= 1 pound, lb.
14 pounds	= 1 stone, st.
4 quarters	= 1 hundredweight, cwt.
20 hundredweights	= 1 ton, t.
100 pounds	= 1 cental, or short cwt.
2000 pounds	= 1 short ton
7000 grains	= 1 pound

TROY WEIGHT	
3.1683 grains	= 1 carat
24 grains, gr.	= 1 pennyweight, dwt.
20 pennyweights	= 1 ounce, oz.
12 ounces or 5760 grains	= 1 pound, lb.

APOTHECARY'S WEIGHT, DRY	
20 grains, gr.	= 1 scruple
3 scruples	= 1 dram
8 drams	= 1 ounce
12 ounces	= 1 pound

APOTHECARY'S MEASURE, LIQUID	
60 minims or drops	= 1 fluid dram
8 fluid drams	= 1 fluid ounce
20 fluid ounces	= 1 pint
8 pints	= 1 gallon

LINEAR MEASURE	
12 inches, ins.	= 1 foot, ft.
3 feet	= 1 yard, yd.
5½ yards	= 1 rod, rd., pole, po., or perch, per.
40 rods	= 1 furlong, fur.
8 furlongs	= 1 mile, mi.
3 miles	= 1 league

LAND MEASURE	
7.92 inches	= 1 link, li.
25 links	= 1 rod, rd.
4 rods or 100 links	= 1 chain, ch.
80 chains	= 1 mile, mi.

SQUARE MEASURE	
144 square inches, sq. in.	= 1 square foot, sq. ft.
9 square feet	= 1 square yard, sq. yd.
30¼ square yards	= 1 square rod, sq. rd., square pole, sq. po., or square perch, sq. per.
40 square rods	= 1 rod, r.
4 rods	= 1 acre, ac.
640 acres	= 1 square mile, sq. mi.

LAND SQUARE MEASURE	
625 square links, sq. li.	= 1 square rod, sq. rd.
16 square rods	= 1 square chain, sq. ch.
10 square chains	= 1 acre, ac.
640 acres	= 1 square mile, sq. mi.
36 square miles	= 1 township
(6 miles square)	= 1 township

CUBIC OR SOLID MEASURE	
1728 cubic inches, cu. in.	= 1 cubic foot, cu. ft.
27 cubic feet	= 1 cubic yard, cu. yd.
128 cubic feet	= 1 cord
LIQUID MEASURE	
4 gills, gill	= 1 pint, pt.
2 pints	= 1 quart, qt.
4 quarts	= 1 gallon, gal.
United States gallon	= 231 cu. in.
British Imperial gallon	= 277.274 cu. in.

DRY MEASURE	
2 pints, pt.	= 1 quart, qt.
4 quarts	= 1 gallon, gal.
2 gallons	= 1 peck, pk.
4 pecks	= 1 bushel, bu.
8 bushels	= 1 quarter, qr.
United States bushel	= 2150.42 cu. in.
British bushel	= 2218.192 cu. in.

CIRCULAR MEASURE	
60 seconds, "	= 1 minute, '
60 minutes	= 1 degree, °
30 degrees	= 1 sign, s.
90 degrees	= 1 right angle, or quadrant
180 degrees	= 1 semi-circle
360 degrees	= 1 circle

MEASURES OF TIME	
60 seconds, sec.	= 1 minute, min.
60 minutes	= 1 hour, hr.
24 hours	= 1 day, dy.
7 days	= 1 week, wk.
2 weeks	= 1 fortnight
4 weeks	= 1 lunar month, mo.
365½ days or 52 weeks, or 12 calendar months or 13 lunar months	= 1 year
366 days	= 1 leap year
100 years	= 1 century
1000 years	= 1 millennium

NAUTICAL MEASURES	
6.08 feet	= 1 fathom, fa.
100 fathoms	= 1 cable's length
10 cable's lengths or 1000 fathoms	= 1 nautical mile
60 nautical miles	= 1 degree
360 degrees	= the earth's circumference
1 knot (a measure of speed)	= 1 nautical mile per hour

UNITED STATES MONEY	
One-cent piece, made of copper, tin and zinc	
Five-cent piece, made of copper and nickel	
Ten-cent piece, made of silver	
Twenty-five-cent piece, made of silver	
Fifty-cent piece, made of silver	
Standard silver dollar, made of silver, worth one hundred cents	
Gold coins in pieces worth \$2.50, \$5, \$10 and \$20	
Paper money includes certificates and notes of many denominations from \$1 to \$10,000	

CANADIAN MONEY	
One-cent piece, bronze	
Two-cent piece, bronze	
Five-cent piece, nickel or silver	
Ten-cent piece, silver	
Twenty-five-cent piece, silver	
Fifty-cent piece, silver	
Gold coins—five-dollar and ten-dollar pieces, British sovereign (value \$4.86 2½)	
Paper money and notes of the denominations of 25 cents, \$1, \$2, \$4, \$5, \$50, \$100, \$500 and \$1000. For the use of banks only, notes up to the value of \$50,000 are issued	

ENGLISH MONEY	
4 farthings	= 1 penny
12 pence	= 1 shilling
20 shillings	= 1 pound, or sovereign
2 shillings	= 1 florin
2 shillings and 6 pence	= 1 half-crown
21 shillings	= 1 guinea

OTHER FOREIGN MONEY	
(Normal value in dollars)	
This table shows the value of the standard coins of many countries:	
Franc (France, Belgium and Switzerland)	= \$0.1930
Mark (Germany)	= \$0.2382
Pound (English)	= \$4.8665
Rouble (Russia)	= \$0.5146
Krone (Austria)	= \$0.1407
Rupee (India)	= \$0.2443
Tael (China)	= \$0.8754
Pound (Egypt)	= \$4.9451
Pound (Turkish)	= \$4.40
Yen (Japan)	= \$0.4985
Milreis (Brazil)	= \$0.5462
Krone (Scandinavian countries)	= \$0.2680
Florin (Holland)	= \$0.402
Peso (Mexico)	= \$0.4985
Khram (Persia)	= \$0.0946
Escudo (Portugal)	= \$1.0805
Paper dollar (Argentina)	= \$0.9648
Peseta (Spain)	= \$0.1930
Lira (Italy)	= \$0.1930
Leu (Rumania)	= \$0.1930
Dinar (Jugoslavia)	= \$0.1930
Drachma (Greece)	= \$0.1930
Zloty (Poland)	= \$0.1930
Peso (Chile)	= \$0.12165
Gold Peso (Uruguay)	= \$1.0342
Pound (Persia)	= \$4.8665
Krone (Hungary)	= \$0.203
Finmark (Finland)	= \$0.0251

POUNDS IN A BUSHEL OF VARIOUS COMMODITIES	
Beans	60
Buckwheat	48
Clover seed	60
Peas	60
Corn	56
Wheat	60
Hempseed	44
Potatoes	60
Barley	48
Rye	56
Carrots	50

WEIGHTS AND MEASURES

POUNDS IN A CUBIC FOOT OF TIMBER

Alder	26-42
Ash	40-53
Beech	43-56
Birch	32-48
Elm	34-37
White Fir	22-31
Hazel	37-49
Lime	20-37
Maple	37-47
Oak	37-56
Poplar	22-31
Sycamore	24-37
Willow	24-37
Apple	41-52
Bamboo	19-25
Cedar	30-35
Hickory	37-58
Juniper	35
Walnut	40-43
Pear	38-45
Plum	41-49
Lignum Vitæ	73-83
Dogwood	47
Cherry	43-56
Box	59-72

ROMAN NUMERALS

I = 1	XL = 40
II = 2	L = 50
III = 3	LX = 60
IV = 4	LXX = 70
V = 5	LXXX = 80
VI = 6	XC = 90
VII = 7	C = 100
VIII = 8	CC = 200
IX = 9	CCC = 300
X = 10	CD = 400
XI = 11	D = 500
XII = 12	DC = 600
XIII = 13	DCC = 700
XIV = 14	M = 1000
XV = 15	MC = 1100
XVI = 16	MD = 1500
XVII = 17	MM = 2000
XVIII = 18	V̄ = 5000
XIX = 19	VĪ = 6000
XX = 20	X̄ = 10,000
XXX = 30	C̄ = 100,000

THE METRIC SYSTEM

MEASURES OF WEIGHT

10 milligrams,	= 1 centigram,
100	cg.
10 centigrams	= 1 decigram, dg.
10 decigrams	= 1 gram, g.
10 grams	= 1 decagram, Dg.
10 decagrams	= 1 hectogram, Hg.
10 hectograms	= 1 kilogram, Kg.
10 kilograms	= 1 myriagram, Mg.
10 myriagrams	= 1 quintal, Ql.
10 quintals	= 1 ton, T.

LINEAR MEASURE

10 millimetres,	= 1 centimetre, cm.
mm.	
10 centimetres	= 1 decimetre, dm.
10 decimetres	= 1 metre, m.
10 metres	= 1 decametre, Dm.
10 decametres	= 1 hectometre, Hm.
10 hectometres	= 1 kilometre, Km.
10 kilometres	= 1 myriametre, Mm.

SQUARE MEASURE

100 square millimetres, sq. mm.	= 1 square centimetre, sq. cm.
100 square centimetres	= 1 square decimetre, sq. dm.
100 square decimetres	= 1 square metre or 1 centiare, sq. m. or ca.
100 square metres (centiares)	= 1 square decametre or 1 are, sq. Dm. or a.
100 square decametres (ares)	= 1 square hectometre or 1 hectare, sq. Hm. or Ha.
100 square hectometres (hectares)	= 1 square kilometre, sq. Km.

CUBIC MEASURE

1000 cubic millimetres, cu. mm.	= 1 cubic centimetre, cu. cm.
1000 cubic centimetres	= 1 cubic decimetre, cu. dm.
1000 cubic decimetres	= 1 cubic metre, cu. m.

MEASURE OF CAPACITY

10 millilitres, ml.	= 1 centilitre, cl.
10 centilitres	= 1 decilitre, dl.
10 decilitres	= 1 litre, l.
10 litres	= 1 decolitre, Dl.
10 decolitres	= 1 hectolitre, Hl.
10 hectolitres	= 1 kilolitre, Kl.
10 kilolitres	= 1 myrialitre, Ml.

THERMOMETERS

COMPARATIVE SCALES

Reau- mur	Centi- grade	Fahren- heit	
80°	100°	212°	WATER BOILS AT SEA- LEVEL
76	95	203	
72	90	194	
68	85	185	Alcohol Boils
63.1	78.9	174	
60	75	167	
56	70	158	Tallow Melts
52	65	149	
48	60	140	
44	55	131	Blood Heat
42.2	52.8	127	
40	50	122	
36	45	113	Temperate
33.8	42.2	108	
32	40	104	
29.3	36.7	98	WATER FREEZES
28	35	95	
25.8	32.2	90	
24	30	86	ZERO Fahren- HEIT
21.3	26.7	80	
20	25	77	
16	20	68	MERCURY FREEZES
12.4	15.3	60	
10.2	12.8	55	
8	10	50	
5.8	7.2	45	
4	5	41	
1.3	1.7	35	
0	0	32	
-0.9	-1.1	30	
-4	-5	23	
-5.3	-6.7	20	
-8	-10	14	
-9.8	-12.2	10	
-12	-15	5	
-14.2	-17.8	0	
-16	-20	-4	
-20	-25	-13	
-24	-30	-22	
-28	-35	-31	
-32	-40	-40	

UNITS OF MEASUREMENT

1 horse power	= the force required to raise 33,000 pounds one foot in one minute
1 foot pound	= the energy required to raise one pound a height of one foot
1 dyne	= the force which acting on one gram for one second generates a velocity of one centimetre a second
1 erg	= the amount of work done by one dyne acting through one centimetre
1 poundal	= the force which acting for one second upon one pound gives it a velocity of one foot per second. It is equal to 13,825.5 dynes
1 atmosphere	= the pressure of 14.7 pounds per square inch equal to 34 feet of water or 29.92 inches of mercury
The thermal unit = the quantity of heat required to increase the temperature of one gram of water by one degree centigrade when it is at its maximum density	

The unit of pressure = one pound acting on a surface of one square inch

1 candle-power = the light given by one spermaceti candle, 7/8 inch in diameter and 1/6 pound in weight burning at the rate of 120 grains per hour

1 calorie = the quantity of heat required to raise the temperature of 1 kilogram of water 1 degree centigrade at, or near, 4 degrees centigrade

1 joule = 10,000,000 ergs

1 light year = 5,876,068,880,000 miles

In astronomy 1 unit of length = the mean radius of the earth's orbit, 92,900,000 miles

A micron = the millionth part of a metre

The gauss is a unit used to measure the intensity of a magnetic field

UNITS OF ELECTRICITY

1 volt = the unit for measuring pressure or electro-motive force, and is the electrical pressure which, if steadily applied to a conductor whose resistance is one ohm, will produce a current of one ampère

1 ohm = the unit for measuring resistance, and is the resistance offered to a current by a column of mercury at the temperature of melting ice, the mass being 14.45 grams, the height of the column 106.3 centimetres, and the section one square millimetre

1 ampère = the unit for measuring current, and is the current one volt will drive through one ohm

1 coulomb = the unit for measuring quantity, and is equal to one ampère flowing for one second

1 microfarad = the unit for measuring capacity. It is the millionth part of a farad and is equal to the capacity of about three miles of an ocean cable

1 watt = the unit for measuring power, and is equal to a current of one ampère at a pressure of one volt

1 joule = the work done in one second in maintaining a current of one ampère against a resistance of one ohm

1 farad = the capacity of a condenser charged to one volt by one coulomb

1 watt-hour = the energy obtained by maintaining a power of one watt for one hour

1 kilowatt-hour = 1000 watts acting for one hour

QUICK WAYS OF RECKONING

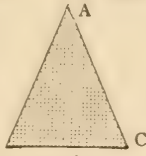
Rough and ready ways of changing one measure or weight into another so as to give approximate results

To turn
metres into feet multiply by 3½
feet into metres multiply by 3 and divide by 10
metres into yards add one-tenth
yards into metres deduct one-tenth
kilometres into miles multiply by 3 and divide by 5
miles into kilometres add three-fifths of the number
square metres into square yards add one-fifth
square yards into square metres deduct one-fifth
square kilometres into square miles multiply by 2 and divide by 5
square miles into square kilometres multiply by 2½
cubic metres into cubic yards add one-third
cubic yards into cubic metres deduct one-third
kilograms into pounds (avoidrupois) add a tenth and multiply by 2
pounds into kilograms deduct a tenth and divide by 2
litres into pints add three-quarters
pints into litres multiply by 3 and divide by 5

THE QUICKEST WAY OF FINDING THINGS

The Area of a Triangle

The area of a triangle is equal to the base multiplied by half the perpendicular height; or if we know the length of the three sides AB, BC, CA, and half their sum is represented by S, we can find the area by using the formula $S(S-AB)(S-BC)(S-CA)$, and by taking the square root of the result.



The Area of an Equilateral Triangle

The area of an equilateral triangle can be found by multiplying the square of the length of one side by .433.

If we have the Length of Two Sides of a Right-angled Triangle, how can we find the Third Side?

If we have the base and perpendicular we should square each of these, add the results together, and take the square root of the sum; that will give us the length of the hypotenuse, or side opposite the right angle. If we have the length of the hypotenuse and one other side, we should square them both, subtract the smaller number from the larger, and take the square root of the result. That will be the third side.



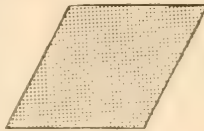
The Area of a Parallelogram

To find the area of a parallelogram, we have to multiply the base by the perpendicular height.



The Area of a Rhombus or Square

In addition to the last-mentioned method we may multiply the two diagonals together and divide the result by two.



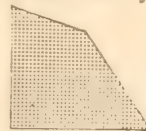
The Area of a Trapezoid

A trapezoid is a four-sided figure having two of its sides parallel, and we find the area by taking half the sum of the two parallel sides and multiplying by the perpendicular distance between them. The result is the area.



The Area of a Trapezium

A trapezium is a four-sided figure of which no two sides are parallel. We find its area by multiplying the longest diagonal by half the sum of the two perpendiculars falling on it from the opposite angles. Another method of finding the area of any figure of four or more unequal straight sides is to divide it into triangles and find the area of each, adding these together for the result.



The Area of a Hexagon, Octagon, or any Regular-sided Figure

Take half the radius of the inscribed circle (that is, the circle drawn *inside* the figure and touching all its sides), multiply this by the length of one side, and then multiply the result by the number of the sides.



The Circumference of a Circle

Multiply the diameter of the circle by 3.1416, or, more roughly, by $3\frac{1}{7}$.

The Diameter of a Circle

If we have the length of the radius we multiply that by two to find the diameter of a circle; if we have the length of the circumference we multiply that by .31831.

The Area of a Circle

There are many ways of finding the area of a circle. We may multiply half the radius by the circumference; or we may square the radius and multiply by 3.1416; or we may square the diameter and multiply by .7854; or we may square the circumference and divide by 3.1416 multiplied by four; or we may square the circumference and multiply by .07958; or we may find the area of a triangle having a base equal to the circumference and a height equal to the radius.



The Circumference of an Ellipse

Take half the sum of the long and short diameters and multiply by 3.1416. The answer gives the circumference.

The Area of an Ellipse

Take the long diameter, multiply it by the short diameter, and multiply the result by .7854.



The Length of the Arc of a Circle

The simplest way to find this is to subtract the chord of the whole arc from eight times the chord of half the arc, and divide the remainder by three.



The Area of the Sector of a Circle

Multiply the length of the arc by one-half the radius and the result is the area of the sector.



The Area of the Segment of a Circle

We find the area of a sector having the same arc by the method given in the last paragraph, and then subtract from the result the area of the triangle formed by the radii and the chord.



The Area of the Surface of a Sphere

This is found by squaring the diameter and multiplying by 3.1416; or by multiplying the diameter by the circumference.



The Cubic Contents of a Sphere

To find this we must cube the diameter and multiply by .5236; or we take the area of the surface and then multiply it by one-third of the radius.

The Area of the Surface of a Cylinder

Add the areas of the two ends to the result of the circumference of one end multiplied by the length. This will give the area of the surface.



The Cubic Contents of a Cylinder

Multiply the area of one end by the length of the cylinder.

THE QUICKEST WAY OF FINDING THINGS

The Area of the Surface of a Prism

To find this add the areas of the two ends to the perimeter, or distance round one end multiplied by the length.

The Cubic Contents of a Prism

Multiply the area of one end by the length of the prism and the result is the cubic contents.

The Cubic Contents of a Prismoid

A prismoid is a body that the form of a prism without being actually a prism; that is, its sides are not parallelograms. To find its contents we proceed thus: to the sum of the area of the two ends we add four times the middle area and multiply the sum by one-sixth the height.

The Area of the Surface of a Cone

To find this multiply the slant height by the circumference of the base, and divide the result by two. Then to the result add the area of the base.

The Cubic Contents of a Cone

To find this multiply one-third of the perpendicular by the area of the base.

The Area of the Surface of a Pyramid

Multiply the slant height by the perimeter of the base, divide by two, and add the area of the base. The result will give the area of the surface.

The Cubic Contents of a Pyramid

Multiply one-third of the perpendicular height by the area of the base to find the cubic contents.

The Length of a Ring

There are various ways of finding the length of a ring. We may multiply the sum of the radii of the outer and inner boundaries by 3.1416; or we may take half the sum of the outer and inner boundaries; or we may subtract the circumference of the cross section from the outer boundary; or we may add the inner boundary to the circumference of the cross section.

The Area of the Surface of a Plane Ring

The surface of a plane ring is the space between two concentric circles, and its area is found by adding the two radii together, multiplying by their difference, and then multiplying the result by 3.1416.

The Area of the Surface of a Solid Ring

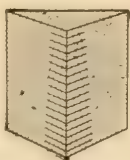
Multiply the circumference of the circular section of the ring by the length of the ring, and the result is the area of the surface.

The Cubic Contents of a Ring

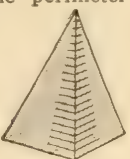
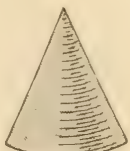
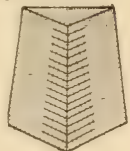
To find this multiply the area of the cross section by the length of the ring.

The Cubic Contents of a Spherical Shell

This means the space occupied by the actual material of a hollow ball, and we find it by subtracting the cube of the inner



approaches to



diameter from the cube of the outer diameter and multiplying the result by .5236.

The Cubic Contents of the Zone of a Sphere

The zone of a sphere is the part included between two parallel planes, and its contents are found by squaring the radius of the base, multiplying the result by three, then adding that result to the square of the height, and multiplying the whole by .5236 of the height.



The Cubic Contents of the Segment of a Sphere

The segment of a sphere is the part cut off by a single plane, and its contents are found by squaring the radius of the base, multiplying the result by three, then adding that result to the square of the height, and multiplying the whole by .5236 of the height.



The Area of the Surface of a Frustum

A frustum is the part of a solid figure next to the base left after cutting off the top part by a plane parallel to the base. The area of its surface is found by multiplying the slant height by the perimeter of the two ends added together, dividing by two, and then adding to the result the areas of both ends.



The Cubic Contents of a Frustum

To the area of the two ends add the square root of their product and multiply by one-third of the height to find the cubic contents.

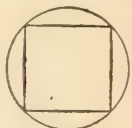
The Area of a Parabola

A parabola is formed when we intersect or cut a cone with a plane parallel with its side. The area of the surface thus exposed is found by multiplying the base by two-thirds the height.



The Length of the Side of a Square Inscribed in a Circle

Multiply the diameter of the circle by .707 and the result gives the side of the inscribed square.



The Diameter of a Circle Circumscribing a Square

Multiply the side of the square by 1.414.

The Length of the Side of a Square Circumscribing a Circle

This square of course has a side exactly equal to the diameter of the circle that it circumscribes, or fits round.



The Length of the Side of a Square Equal in Area to a Circle

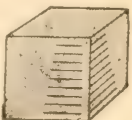
Multiply the diameter of the circle by .8862.

The Diameter of a Circle Equal in Area to a Square

Multiply the side of the square by 1.1284.

The Cubic Contents of a Cube

Multiply the length by the breadth and the result by the height; in other words, cube the side, and the result is the volume or cubic contents.



THE following pages give a key to the illustrations in the Book of Knowledge relating to the Fine Arts of Painting, Sculpture, and Architecture. They have been compiled to help scholars and parents, as well as teachers, to readily find, profit by and enjoy in the simplest and most complete way the sight of art treasures in actual pictures to see which themselves would require years and thousands of miles of travel, and we all know how many, many words a good picture saves. Suppose, for instance, one wanted to understand the difference between the Gothic and Roman orders of architecture. In the pages devoted to architecture (by Ralph Adams Cram), under the appropriate head, will be found listed illustrations showing the best examples of each in various lands that visually answer the question clearly. Or discussion arises as to the costumes worn in Georgian times. A glimpse at the list of paintings by Gainsborough and Sir Joshua Reynolds would put the inquirers quite completely in possession of the facts. What did Oliver Wendell Holmes look like? What are the characteristics of Colonial architecture, and the best examples in America? What was the influence on subsequent art of the paintings of El Greco? And so on. These few examples will show you the infinite variety of games and profitable study to be suggested by consulting this convenient and instructive index at home or at school.

KEY TO ILLUSTRATIONS OF THE FINE ARTS

PAINTING, SCULPTURE AND ARCHITECTURE

PAINTING

A

Abbey, Edwin A., American painter (1852-1911)
The Vision of the Holy Grail, 19-6948
text, 10-3450-51

Academia, by Edwin H. Blashfield, 10-3462

Adams, John, portrait (in group) by John Trumbull, 4-1167; 5-1694

Adams, John Quincy, portrait, 10-3491

Addison, Joseph, dictating to Richard Steele, 5-1622

Adoration of the Child, by Gerard David, 4-1224

Adoration of the Lamb, by Hubert van Eyck, 4-1223

Adoration of the Magi, by Albrecht Dürer, 4-1346

Adoration of the Shepherds, by Hugo van der Goes, 4-1223

Adoration of the Shepherds, by Ribera, 4-1494

Adoration of the Wise Men, by Stephen Lochner, 4-1343

Age of Innocence, The, by Sir Joshua Reynolds, 7-2340

Agincourt, Field of, 5-1685, 1885

Aldobrandini Marriage, The, Greek painting, 2-447

Alexander the Great at Persepolis, 3-913

Alexander, John W., American painter (1856-1915)
Black and green, 10-3461
Portrait of Walt Whitman, 13-4729
text, 5-1536; 10-3452

Alfred the Great appeals to his people, 4-1433
building the fleet, 13-4587
lets the cakes burn, 4-1433

Allori, Angelo, *see* **Bronzino, II**

Allston, Washington, American painter (1779-1843)
A Spanish girl, 9-3331
text, 9-3328, 3330

Althorp, Lord, portrait by Sir Joshua Reynolds, 6-2119

André, Major, hearing his death warrant, 11-3997

Andrea del Sarto, Italian painter (1486-1531)
St. John the Baptist, 3-964
text, 3-958

Angel of the Annunciation, The, by Memmi, 2-696

Angelico, Fra, Italian painter (1387-1455)
scenes from his life, 13-4863
The Nativity, 2-694
text, 2-698; 13-4866, 4868

Angelus, The, by Jean Francois Millet, 1-71

Animals, Legendary, 1-353-59

Annunciation, The, by Dante Gabriel Rossetti, 6-2240
by Roger van der Weyden, 4-1220

Apes, by J. C. Dollman, 16-6032

Apollo and Daphne, by Henrietta Rae, 9-3231

Apollo charming the animals, by Briton Rivière, 9-3230

Apotheosis of Homer, by Ingres, 16-5749

Arbela, Battle of, 3-913, 1077

Archer, James, Scottish painter (1824-1904)
The passing of Arthur, 19-6947

Ariosto, by Titian, 3-1105

Aristides asked to mark a vote against himself, 2-763

Armada, Wreck of the Spanish, by Albert Goodwin, 5-1819

Arnolfini, Jan, and his wife, by Jan van Eyck, 4-1223

Arthur, King, at Avalon, by Burne-Jones, 19-6948
Knights of, by Burne-Jones, 19-6946
Passing of, by James Archer, 19-6947

Artist in his museum, The, by Charles Willson Peale, 9-3326

Artist's mother, The, by Whistler, 10-3446

Arundel, Earl of, and his grandson, by Van Dyck, 5-1584

As You Like It, Scenes from, by Harold Speed and Sir J. E. Millais, 3-839

Assyrian palace, interior, 1-296

At the Golden Gate, by Val Prinsep, 6-2240

Audubon, John J., portrait by F. Cruikshank, 19-7052

Auerbach, Boniface, portrait by Holbein, 4-1350

Augustina, The Maid of Saragossa, 14-5119

Aurora, by Guido Reni, 3-1110

Avenue at Middelharnais, The, by Hobbema, 5-1587

B

Bach, Johann Sebastian, at the organ, 19-6919
Morning hymn at the house of, by J. E. Rosenthal, 19-7070

Back from the Southern Seas, by Edgar Bundy, 14-5026

Bacon, Francis, portrait, 5-1821

Bacon, Nathaniel, threatened by Governor Berkeley, 2-551

Bailiff's daughter, The, by John Hatherell, 11-4031

Baillie family, The, by Gainsborough, 7-2339

Bainbridge, William, portrait, 17-6327

Balboa in Central America, 1-253
portrait, 1-245

Balcony, The, by Edouard Manet, 7-2474

Balthasar Carlos, Prince, by Velasquez, 4-1502, 1503

Bancroft, George, portrait by Gustave Richter, 13-4822

Banquet of the officers of St. George's Shooting Company (St. Jorisdoelen) of Haarlem, by Frans Hals, 12-4181

Barbarelli, Giorgio, *see* **Giorgione, II**

Barlow, Gen. Francis C., receiving surrender of prisoners, by Winslow Homer, 7-2443

Barrard, Francis, English painter
Dr. Johnson visiting Sir Joshua Reynolds, 7-2333

Bartolo, Taddeo, Italian painter (1363-1422)
Saint Francis, 2-696
text, 2-697

Bartolozzi, F., portrait by John Opie, 6-2109

Bastien-Lepage, Jules, French painter (1848-1884)
Joan of Arc, 7-2479
The old beggar, 7-2479
text, 7-2480

Bastille, Taking of the, 6-2131

Bat and ball, Game of, from 14th century ms., 6-1999

Bates, Edward (in group), by Francis Bicknell Carpenter, 7-2426

Battle of Arbela, 3-1077
Eve of, 3-913

Battle of Arcola, 6-2198

Battle of Blenheim, 6-2099

Battle of Bouvines, by Horace Vernet, 6-2077

Battle of King's Mountain, 4-1171

Battle of Lake Erie, by William H. Powell, 17-6332

Battle of Lepanto, 13-4803

Battle of Lexington, 4-1163

Battle of Magenta, 12-4411

Battle of Milvian Bridge, 5-1858

Battle of New Orleans, 5-1707

Battle of Northallerton, 12-4205

Battle of Salamis, 3-1077

Return of the Greek victors after, by Fernand Cormon, 3-1077

KEY TO ILLUSTRATIONS (PAINTING)

- Battle of Solferino, 12-4411**
Battle of the Alabama and the Kearsarge, 7-2435
Battle of the Constitution and the Guerrière, 17-6329
Battle of the Cowpens, 4-1171
Battle of the Merrimac and the Monitor, 7-2435
Battle of Trafalgar, 6-2096, 2210
Battle of Waterloo, 6-2096
Baumgartner, Stephen, as St. George, by Albrecht Dürer, 4-1347
Bayard, Death of, 13-4578
Beaching Dutch boats, by Mesdag, 8-2864
Beaching the boat, by Sorolla, 8-2855
Beata Beatrix, by Dante Gabriel Rossetti, 6-2237
Beaux, Cecilia, American painter (1863-)
Girl in white, 10-3461
text, 10-3455
Becker, Carl Ludwig Friedrich, German painter (1820-1900)
Maximilian receiving ambassador from Venice, 11-3961
Bede, The Venerable, translating the Gospel, by J. Doyle Penrose, 1-122
12th century picture of, 2-476
with his schoolboys, 2-472
Beggar, The old, by Bastien-Lepage, 7-2479
Beguiling of Merlin, by Burne-Jones, 19-6947
Belisarius carrying his dead guide, 13-4799
Belle Jardinière, La, by Raphael, 3-963
Bellini, Gentile, Italian painter (c. 1429-1507)
Doge Giovanni Mocenigo, 3-1105
Sultan Mohammed II, 3-1105
text, 3-1103-04; 4-1460-61
Bellini, Giovanni, Italian painter (1428-1516)
portrait, 4-1455
A doge of Venice, 1-68
The Holy Family, with St. Paul and St. George, 3-1110
The Madonna and Child, 3-1110; 4-1457
The Transfiguration, 3-1112
text, 3-1103-04; 4-1460-61
Bellows, George, American painter (1882-1925)
Lady Jean, 10-3464
Up the Hudson, 10-3463
text, 10-3454
Benson, Frank W., American painter (1862-)
My daughter, 10-3461
text, 5-1536; 10-3455
Bent tree, The, by Corot, 7-2375
Bertin the Elder, portrait by Ingres, 6-2079
Besnard, Paul Albert, French painter (1839-)
Study of a head, 8-2709
Retrayal by Judas, The, by Cimabue, 2-696
Bettes, John, English painter (c. 1530-1576)
Portrait of Edmund Butts, 6-2003
text, 6-2000
Bicci, Lorenzo di, Italian painter (1373-1452)
St. Nicholas helping the poor, 6-1990
Bicknell, William Henry Warren, American etcher (1860-)
Portrait of John Lothrop Motley, 13-4814
Biddle, Major Thomas, portrait by Thomas Sully, 9-3324
Bishop and St. Geneviève, A, by Puvis de Chavannes, 7-2478
Bismarck, portrait by Franz von Lenbach, 8-2863
dictating the terms of the Peace of Versailles, by Carl Wagner, 11-3969
Black and green, by John W. Alexander, 10-3461
Blair, Montgomery (in group), by Francis Bicknell Carpenter, 7-2426
Blakelock, Ralph Albert, American painter (1847-1919)
Indian encampment, 10-3462
text, 10-3455
Blashfield, Edwin Howland, American painter (1848-)
Academia, 10-3462
text, 10-3453
Blessed Bread, The, by Dagnan-Bouveret, 7-2477
Blessed Damozel, The, by Dante Gabriel Rossetti, 8-2905
Blue Boy, The, by Gainsborough, 7-2340
Boabdil surrendering the keys of Granada, by Francisco Pradilla, 14-5043
Board, Ernest, English painter (1877-)
John and Sebastian Cabot leaving Bristol, 1-254
Boats on the River Oise, by Daubigny, 9-3071
Bohm, Max, American painter (1868-1923)
The evening meal, 10-3464
text, 10-3456
Boileau-Despreaux, Nicholas, portrait of, 18-6714
Boleyn, Anne, portrait of, 5-1821
Bonheur, Rosa, French painter (1822-1899)
The Horse Fair, 7-2369
text, 7-2370
Bonington, Richard, English painter (1801-1828)
A river scene, 6-2232
Fishing boats, 6-2233
text, 6-2232, 2234
Bonnat, Léon, French painter (1833-1922)
Portrait of Léon Cogniet, 8-2863
text, 8-2856-57
Bonnie Prince Charlie, by John Pettie, 15-5638
Book of Kells, page from, 8-2941
Book of the Dead, illustrations from, 1-294; 15-5459
Books of the Middle Ages, illustrations from, 2-477-80
Boone, Daniel, in his old age, 6-2193
Borg, Katharine von, by Lucas Cranach the Elder, 4-1346
Borgognone, Ambrogio, Italian painter (1455-1523)
Marriage of the two St. Catherines, 3-1105
text, 3-1107
Borro, Alessandro del, portrait by Velasquez, 4-1502
Boscocale, mural decorations from a villa near, 2-453
Bossuet, Jacques Bénigne, portrait of, 18-6713
Boston Massacre, engraving by Paul Revere, 4-1160
Botticelli, Sandro (Alessandro Filipepi), Italian painter (1466-1510)
Spring, 2-693
The Madonna and Child, 2-690
The Virgin with the Infant Jesus, 2-695
text, 2-699
Boucher, François, French painter (1703-1770)
Pastoral idyl, 5-1875
Portrait of a lady, 15-5311
text, 5-1881
Boughton, George Henry, Anglo-American painter, (1833-1903)
Marvell shaking hands with Milton, 4-1237
Milton's first love, 4-1234
Bourne, Mrs. Sylvanus, portrait by Copley, 3-969
Bouts, Thierry (Dierick), Flemish painter (1410-1475)
Portrait of a man, 4-1228
text, 4-1225
Bowles, Miss, by Sir Joshua Reynolds, 7-2340
Boy as a Pierrot, A, by Fragonard, 5-1879
with a kid, A, by Sir Thomas Lawrence, 6-2119
with a sword, by Edouard Manet 7-2479
Boyhood of Sir Humphry Davy, by Charles Sheldon, 3-991
Boyhood of Sir Walter Raleigh, by Sir J. E. Millais, 5-1812
Brahe, Tycho, as a boy, 1-203
Bray on the Thames, by Peter de Wint, 6-2233
Brazil, The Cry of Ypiranga, 19-7043
Bricard, François Xavier, French painter (1879-)
Mother and child, 8-2862
text, 8-2858
Brignole-Sale, Andrea, on horseback, portrait by Van Dyck, 5-1587
Bringing home the cattle, by Thomas Moran, 10-3458
Britons trading with the Phoenicians, by Lord Leighton, 4-1431
Broken pitcher, The, by Greuze, 5-1877
Bronzino, Il (Angelo Allori), Italian painter (1502-1572)
Portrait of Ferdinand de Medici, 3-963
Portrait of the Grand Duchess Eleanor, 3-964
Portrait of Maria de Medici, 9-3074
Portrait of Piero de Medici, 3-964
text, 3-958
Brooks, Thomas, English painter (1818-1891)
Shakespeare before Sir Thomas Lucy, 2-725
Brown, Ford Madox, English painter (1821-1893)
Chaucer reading from The Canterbury Tales, 1-298
Christ washing Peter's feet, 6-2237
King Lear renounces Cordelia, 3-987
Oliver Cromwell, 11-3849
text, 6-2236
Bruce, Robert, his last act, fresco by William Eole, 12-4207
capture of his wife and child, 12-4207
Brueghel, Jan, the Elder, Flemish painter (1568-1625)
The festive board, 7-2567
text, 4-1227

KEY TO ILLUSTRATIONS (PAINTING)

Brueghel, Pieter, the Elder, Flemish painter (1525-1569)
Children playing, 4-1226
text, 4-1227

Brush, George de Forest, American painter (1855-)
In the garden, 10-3464
text, 10-3453-54

Bruton Church, Williamsburg, Va., by A. W. Thompson, 5-1701

Brutus condemning his sons to death, 4-1363

Bull fight, by Goya, 4-1499

Bull-grappling, fresco from palace at Knossos, 2-453

Bundy, Edgar, English painter (1862-1922)
Back from the Southern Seas, 14-5027
John Evelyn discovers young Grinling Gibbons, 5-1729

Bunyan, John, scenes in his life, 4-1479

Burghley, William Cecil, Lord, portrait, 5-1821

Burgkmaier, Hans, German painter (1473?-1531)
Portrait of Martin Schongauer, 4-1346
text, 4-1344

Burke, Edmund, at the trial of Warren Hastings, 15-5515

Burne-Jones, Sir Edward, English painter (1833-1898)
Circe, 9-3232
King Arthur in Avalon, 19-6948
King Cophetua and the beggar maid, 2-734
The beguiling of Merlin, 19-6947
The Furies, 9-3225
The Knights of King Arthur, 19-6946
The mirror of Venus, 9-3231
The song of love, 6-2239
text, 6-2236

Burning weeds, by Jean François Millet, 7-2371

Burns, Robert, and Highland Mary, by Thomas Faed, 6-2137

Birthplace of, 6-2135

Portrait of, 6-2136

Butts, Edmund, portrait, by John Bettes, 6-2003

Byrd, William, playing on the virginal, by C. E. Brock, 19-6915

Byron, George Gordon, Lord, portrait of, 7-2489

C

Cabanel, Alexandre, French painter (1823-1889)
King Louis IX dispensing justice, 16-5814
Little King Louis and his mother, 16-5815

Cabot, John, reaches North America, 1-249

Cabot, John and Sebastian, leaving Bristol, by Ernest Board, 1-254

Cache River in the Laurentians, by Maurice G. Cullen, 10-3706

Cæsar, Julius, condemning Vercingetorix, 4-1360
death of, 4-1360

Caflari, or Callari, Paolo, *see* Veronese, Paolo

Calligraphist, The, by Rembrandt, 5-1716

Calmady children, The, by Sir Thomas Lawrence, 9-3072

Calvert, Cecil, portrait, 12-4153

Calvert, George, portrait, 2-549

Camphausen, Wilhelm, German painter (1818-1885)
Portrait of Frederick William of Prussia, 11-3969

Canterbury Pilgrims and Chaucer, by Thomas Stothard, 1-301

Caravaggio, Michelangelo Amerigi da, Italian painter (1569-1609)
The lute player, 9-3070
text, 3-1108; 4-1496; 5-1874; 9-3069

Caritas, by Abbott Thayer, 10-3457

Carlyle, Thomas, among his books, 9-3311

Carlyle, Thomas, and John Stuart Mill, by Sidney Seymour Lucas, 9-3313

Carmenita, by Sargent, 10-3460

Carpaccio, Vittore, Italian painter (c. 1450-1522)
St. Stephen in dispute with the Doctors, 4-1454
text, 3-1104; 4-1461-62

Carpenter, Francis Bicknell, American painter (1830-1900)
Lincoln and his Cabinet, 7-2426

Carrière, Eugène Anatole, French painter (1849-1906)
Portrait of Anatole France, 8-2709
text, 8-2714

Cartier, Jacques, portrait, 1-245

Carwardine, Mrs., and child, portrait by Romney, 7-2337

Cassatt, Mary, American painter (1845-1926)
Mother feeding her child, 10-3464
text, 10-3450

Castiglione, Balthasar, by Raphael, 3-964

Catacombs, pictures on the walls of the, 2-577

Cattle of ancient Egypt, drawn on a tomb, 3-821

Cave-men's drawings, 1-189-91, 193, 196

Caxton, William, printing the first book in England, 9-3387
quaint illustrations from his books, 9-3381
setting up his press in the Almonry of Westminster, 9-3387
showing a book to the Abbot of Westminster, 1-302

Cervantes, Last hours of, by E. Oliva, 19-7128

Ceremony of the kiss, by Makovski, 16-5697

Cézanne, Paul, French painter (1839-1906)
Self-portrait, 8-2712
The smoker, 8-2709
text, 8-2710, 2712

Chabas, Paul, French painter (1869-)
On the River in Summer, 8-2862
text, 8-2858

Champlain, Samuel de, portrait, 1-245
surrendering to the English in Canada, 2-681

Chariot race in the Circus Maximus, by E. Forti, 10-3744

Chardeyron, Francine
Sleeping child, 14-4941

Chardin, Simeon, French painter (1699-1779)
Grace before meat, 5-1875
text, 5-1882

Charlemagne and his pupils, 10-3433

Charles I, of England, about to die, 6-1975
and William Harvey, 8-2727

Children of, portrait by Van Dyck, 5-1585

Funeral of, by Ernest Crofts, 6-1975

on his way to Whitehall, 6-1975

portrait by Van Dyck, 11-3848

scenes from his life, 6-1972

Charpentier, Madame, and her children, by Renoir, 8-2711

Chase, Salmon P. (in group) by Francis Bicknell Carpenter, 7-2426

Chase, William M., American painter (1849-1916)
Still life (fish and fruit), 9-3325
text, 9-3336

Chaucer, portrait from old book, 1-299
portrait with Canterbury pilgrims, by Thomas Stothard, 1-301
reading The Canterbury Tales, by Ford Madox Brown, 1-298

Cheseman, Robert, portrait by Holbein, 4-1351

Chess-players, by Thomas Eakins, 10-3464

Chichester Canal, by Turner, 6-2229

"Childe Roland to the dark tower came," by J. MacWhirter, 9-3245

Children of Charles I, The, by Van Dyck, 5-1585

Children of the sea, by Josef Israels, 8-2864

Children playing, by Pieter Brueghel, 4-1226

Christ and the pilgrims of Emmaus, by Velasquez, 4-1497

Christ and the Saints, Byzantine triptych, 12-4469

Christ in the manger, by Hugo van der Goes, 4-1221

Christ, Infant, *see* Madonna

Christ washing Peter's feet, by Ford Madox Brown, 6-2237

Christian missionaries in Britain, by J. R. Herbert, 4-1431

Church, Frederic Edwin, American painter (1826-1900)
Cotopaxi, 9-3335
The Parthenon, 10-3458
text, 9-3332-33

Cicero delivering an oration against Catiline, by Cesare Maccari, 4-1367

Cimabue, Giovanni, Italian painter (c. 1240-1302)
portrait of, 5-1735
decorating the walls of a church, 5-1734
The betrayal by Judas, 2-696
text, 2-697; 5-1736

Circe, by Burne-Jones, 9-3232

Clarendon, Earl of, portrait, 2-549

Clay, Henry, portrait, 10-3493

Clay, Maud Hogarth, artist
Horses in the harvest field, 6-2011

Cleveland, Duchess of, by Sir Peter Lely, 6-2003

Clifford, Edward, English painter (1844-1907)
Father Damien, 7-2321

Clinton, De Witt, portrait, 5-1694

Clinton, Sir Henry, portrait, 4-1161

KEY TO ILLUSTRATIONS (PAINTING)

- Clouet, François**, Flemish-French painter (1572-1572)
Portrait of Princess Elizabeth of Austria, 4-1224
text, 4-1227
- Clovis I**, King of the Franks, baptism of, 10-3431
- Clovis II** as boy King of France, receiving homage, 10-3431
- Coast-scene**, by George Inness, 10-3463
- Cockburn, Lady**, and her children, portrait by Sir Joshua Reynolds, 7-2338
- Cockshutt, Henry**, portrait by E. Wylly Grier, 10-3703
- Cogan, Felix**, Belgian painter (1838-)
Erasmus with scholars at Basle, 14-5249
- Cogniet, Léon**, portrait by Bonnat, 8-2863
- Coke, Sir John**, by Cornelius Jonson, 6-2003
- Cole, Thomas**, American painter (1801-1848)
Destruction, 9-3331
The mountain ford, 10-3458
text, 9-3332
- Cole, Timothy**, American engraver (1852-)
Portrait of Edgar Allan Poe, 13-4724
- Columbia** sighting the shores of Scotland, by Georges Girardot, 8-2842
- Columbus, Christopher**, and Queen Isabella, 1-88
before the king and queen of Spain, by Ricardo Balaca y Canseco, 1-87
landing in the New World, 1-82, 240
portrait, 1-86
- Comenius**, portrait, 14-5247
- Constable, John**, English painter (1776-1837)
The cornfield, 6-2231
The hay wain, 6-2231
text, 6-2230-32; 7-2328, 2330
- Constantine** leading his troops at the battle of Milvian Bridge, 5-1858
- Constantinople**, capture of, 13-4801
- Cook, Captain James**, on shipboard, by Charles Sheldon, 3-858
- Cook, The**, by Vermeer, 9-3074
- Cooper, James Fenimore**, portrait, 13-4628
- Copernicus**, death of, 1-205
- Cophetua**, King, and the beggar maid, by Burne-Jones, 2-734
- Copley, John Singleton**, American painter (1737-1815)
Portrait of Lady Wentworth, 9-3324
Portrait of Mr. and Mrs. Ralph Izard, 9-3324
Portrait of Mrs. Sylvanus Bourne, 3-969
text, 9-3326
- Corday, Charlotte**, on the way to execution, 6-2129
- Cormon, Fernand**, French painter (1845-1924)
The return of the victors after Salamis, 3-1077
Cornelia showing her "jewels," 11-3811
- Cornfield**, The, by Constable, 6-2231
- Cornwallis** at Yorktown, 4-1173
portrait, 4-1161
- Corot, Jean Baptiste**, French painter (1796-1875)
Evening, 7-2376
Landscape, 7-2376
The bent tree, 7-2375
text, 7-2370-71
- Correggio, Antonio Allegri da**, Italian painter (1494-1534)
The Madonna and St. Jerome, 3-1111
The Madonna of the Basket, 3-1105
text, 3-1107-08
- Cortes**, conqueror of Mexico, 1-254
portrait, 1-245
- Cossacks**, The, write a letter to the Sultan, by Ilya Repin, 16-5697
- Cotopaxi**, by F. E. Church, 9-3335
- Country scene**, by Salomon Ruissdael, 5-1591
- Courbet, Gustave**, French painter (1819-1877)
Landscape, 7-2477
The stag fight, 7-2477
text, 7-2475-76
- Court, Joseph-Désiré**, French painter (1797-1865)
Mark Antony at the death of Caesar, 11-3929
- Covenanters**, religious service of, 7-2625
wedding of, 2-441
- Covered wagons** crossing the Sierra Nevada, 6-1911
- Cowpens**, Battle of the, 4-1171
- Covens, John Robert**, English painter (1752-1799)
Santa Giustina, Padua, 6-2233
- Cranach, Lucas, the Elder**, German painter (1472-1553)
Portrait of Katharine von Borg, 4-1346
text, 4-1344
- Cranmer, Thomas**, portrait, 5-1821
- Craven, Lady**, portrait by Romney, 6-2115
Creation, ceiling by Michelangelo, 3-822
of Adam, panel in ceiling, 3-826
Creation of animal life, by Gustave Doré, 4-1239
- Credi, Lorenzo di**, Italian painter (1459-1537)
The Madonna and Child, 2-690
The Virgin, 2-696
text, 2-699
- Crofts, Ernest**, English painter (1847-1911)
The burial of Charles Stuart, 6-1975
Napoleon on the field of Waterloo, 6-2211
Oliver Cromwell riding through York, 11-3844
Wellington on his march to Waterloo, 6-2211
- Crome, John, the Elder**, English painter (1768-1821)
The Poringland Oak, 6-2231
text, 6-2230
- Cromwell, Oliver**, by Ford Madox Brown, 11-3849
(miniature) by Christian Richter, 1-67
at the battle of Dunbar, 6-1977
dissolving the Long Parliament, 6-1977
leaving the Houses of Parliament, 6-1979
riding through York, by Ernest Crofts, 11-3844
visiting Milton, by David Neal, 4-1241
- Cromwell, Mrs.**, reading her husband's letter, by Charles Sheldon, 11-3851
- Cruikshank, Frederick**, English painter (1822-1860)
Portrait of John J. Audubon, 19-7052
- Cullen, Maurice Galbraith**, Canadian painter (1866-)
Cache River in the Laurentians, 10-3706
Early morning, Lac Tremblant, 10-3710
text, 10-3703
- Curry, Mrs. Mark**, portrait by Romney, 6-2114
- Curzon, Paul Alfred de**, French painter (1820-1895)
Psyche, 9-3229
- Cuvier, Georges**, in his laboratory, 2-588
- Cuyyp, Albert**, Dutch painter (1620-1691)
River scene with cattle, 5-1591
text, 5-1592
- Cyrus** the Great returning the temple vessels to the Jews, by Gustave Doré, 3-917

D

- Dagnan-Bouveret, Pascale Adolphe Jean**, French painter (1852-)
The Blessed Bread, 7-2477
text, 7-2480
- Dame's school**, A, by Thomas Webster, 14-5251
- Damien**, Father Joseph, by Edward Clifford, 7-2321
- Dance of the Seasons**, The, by Poussin, 11-4131
- Dancer**, A, by Degas, 8-2711
- Danes** invading England, 4-1428
- Danton**, Georges Jacques, portrait of, 18-6714
- Darley, Felix Octavius Carr**, American painter and illustrator (1822-1883)
A scene on Sherman's march to the sea, 7-2439
- Daubigny, Charles François**, French painter (1817-1878)
Boats on the river Oise, 9-3071
Sunset, 7-2375
The water gate, 9-3071
text, 7-2370
- David** at the cave of Adullam, by Claude Lorrain, 5-1883
playing the harp, from old psalter, 6-2001
Saul and Jonathan, 19-7003
- David I**, Good deeds of, by William Eole, 12-4206
- David, Gerard**, Flemish painter (c. 1460-1523)
The Adoration of the Child, 4-1224
text, 4-1226-27
- David, Jacques Louis**, French painter (1748-1825)
Madame Récamier, 6-2078
Mlle. Charlotte du Val D'Ognes, 6-2076
Socrates about to drink the hemlock, 16-5915
The coronation of Josephine, 6-2079
text, 6-2077-80
- Davis, Mary**, by Sir Peter Lely, 6-2002
- Davy, Sir Humphry**, Boyhood of, by Charles Sheldon, 3-991
- Dawson, Sir J. William**, portrait, 19-7055
- Decatur, Stephen**, portrait, 17-6327
- Decius Mus**, the Roman consul, 11-3807
- Declaration of Independence**, The, before Congress, by John Trumbull, 4-1167
- Defoe, Daniel**, in the pillory, 4-1476
- Degas, Hilaire Germain Edgard**, French painter (1834-1917)
A dancer, 8-2711
text, 8-2711, 2714

KEY TO ILLUSTRATIONS (PAINTING)

Delacroix, Ferdinand Victor Eugène, French painter (1799-1863)
 Janizaries on the charge, 6-2082
text, 6-2081-82; 7-2369

Delaroche, Hippolyte, commonly known as **Paul**, French painter (1797-1856)
 Last hours of Queen Elizabeth, 5-1824
 Napoleon crossing the Alps, 6-2205
text, 6-2082

Dentatus, Curius, refusing a bribe, 3-889

de Peyster, Johanna and Johannes, 17th century portraits, 3-969

de Pola, Laura, portrait by Lorenzo Lotto, 3-1111

Desdemona listening to Othello, 3-840

De Soto discovers the Mississippi, 1-249
 portrait, 1-245

"Destruction," from series *The Course of Empire*, by Thomas Cole, 9-3331

De Wint, Peter, Dutch-English painter (1784-1849)
 Bray on the Thames, 6-2233
text, 6-2234

Diaz de la Peña, Narcisse Virgille, French painter (1812-1865)
 The storm, 7-2376
text, 7-2370

Dickens, Charles, and some of his characters, 8-2733
 in his study, 8-2731

Dicksee, Margaret I., English painter (1858-1903)
 Handel as a boy, 19-6913
 Sir Thomas Lawrence as a boy, 7-2329
 Swift and Stella, 5-1619

Disraeli and Gladstone, 7-2295

Dobson, William, English painter (1610-1646)
 Endymion Porter, 6-2003
text, 6-2000

Doge of Venice, A, portrait by Giovanni Bellini, 1-68

Doge Giovanni Mocenigo, by Gentile Bellini, 3-1105

D'Ognes, Charlotte du Val, by J. L. David, 6-2076

Dollman, John Charles, English painter (1851-)
 "Aah!" said a hundred thousand apes, 16-6032
 A very gallant gentleman, 14-5088

Domenichino, Il (Domenico Zampieri), Italian painter (1581-1641)
 The Communion of St. Jerome, 13-4865

Dorcas giving garments to the poor, 1-124

Doré, Paul Gustave, French painter (1833-1883)
 Creation of animal life, from *Paradise Lost*, 4-1239
 Cyrus the Great returning the temple vessels to the Jews, 3-917

Douglas, Stephen A., portrait, 10-3493

Douw, Gerard, Dutch painter (1613-1675)
 The young mother, 5-1591
text, 5-1594

Drake, Sir Francis, at Panama, 14-4963
 first sees the Pacific Ocean, 14-4963
 playing bowls, by Seymour Lucas, 5-1819
 portrait, 1-245; 5-1821

Draper, Herbert J., English painter (1864-)
 The heaven that lies about a child, 7-2635

Dryden, John, portrait, 4-1357

Duccio, di Buoninsegna, Italian painter (1255-1340?)
 The Madonna and Child, 2-697

Dumas, Alexander, portrait, 18-6716

Dunstan, Archbishop of Canterbury, reproving King Edwy, by W. J. Morgan, 8-2848

Dupré, Jules, French painter (1811-1889)
 The great oak, 7-2374
text, 7-2370

Durand, Asher B., American painter (1796-1886)
 Landscape, 9-3335
text, 9-3332

Dürer, Albrecht, German painter, engraver and designer (1471-1528)
 portrait, 4-1455
 in his studio, 4-1463
 A knight and a lady, 4-1348
 Jerome Holzschuher, portrait, 4-1347
 Nuremberg town-band, 19-7071
 Portrait of a young man, 4-1347
 St. George and the dragon, 4-1348
 Stephen Baumgartner as St. George, 4-1347
 The adoration of the Magi, 4-1346
text, 4-1344-45, 1461

Dustin children, *Escape of the*, 3-779

Dysart, Winifred, by George Fuller, 10-3461

Dyce, William, English painter
 The admission of Sir Tristram to the fellowship of the Round Table, 19-6946

E

Eakins, Thomas, American painter (1844-1916)
 The chess-players, 10-3464
text, 10-3453

Earl, Maud, English painter
 The end of the trail, 2-711

Earle, Ralph, American painter (1751-1801)
 Lady Williams and her child, 3-969

Early morning, Lac Tremblant, by Maurice G. Cullen, 10-3710

Eastern trader, An, by Horace Vernet, 6-2079

Edgar the Peaceable and vassal kings, 8-2843

Edward I of England, death of, 5-1681

Edward V and his brother in the Tower, by Sir J. E. Millais, 1-149

Edward VI, the boy king, by Holbein, 5-1823

Edwards, Jonathan, portrait of, 12-4445

Egfrid, king of Northumberland, and Cuthbert, by W. Bell Scott, 8-2847

Egyptian study of geese, 1-289
 cattle, ancient mural painting, 3-821
 family catching birds, mural painting, 3-820
 mural painting, 10-3547

Elaine the Lily Maid of Astolat, by Mouat Loudan, 16-5822

El Greco, *see* **Greco, El**

Eliot, John, preaching to the Indians, 18-6635

Elizabeth, Queen of England, portrait by Federigo Zuccherro, 5-1821
 Last hours of, by Delaroche, 5-1824
 listening to a reading by Shakespeare, by Eduard Ender, 3-833
 receiving the French ambassador, by W. F. Yeames, 5-1815
 shown an experiment in electricity by William Gilbert, 4-1254
 signing the death warrant of Mary Queen of Scots, by Julius Schrader, 5-1824
 watching a revelry, 5-1824

Elizabeth, Princess of Austria, portrait by François Clouet, 4-1224

Elliott, Charles Loring, American painter (1812-1868)
 Portrait of Mrs. James C. Griswold, 9-3329
text, 9-3330

Elmore, Alfred, Irish painter (1815-1881)
 Marie Antoinette facing the mob in the Tuileries, 6-2126

Embarkation for Cythera, The, by Watteau, 5-1833

Embarkation of the Pilgrims, 2-545

Emerson, Ralph Waldo, drawing by G. B. Tobin, 13-4630

End of the trail, The, by Maud Earl, 2-711

Ender, Eduard, Austrian painter (1822-1883)
 Shakespeare reading to Queen Elizabeth, 3-833

Enid and Geraint, by Rowland Wheelwright, 19-6945

Eole, William, Scottish painter
 After Flodden Field, 12-4211
 Bruce confers a charter upon Edinburgh, 12-4207
 Good deeds of King David I, 12-4206
 James III presented to the nobles, 12-4209
 Margaret arriving in Scotland, 12-4206

Erasmus among his books, 14-5249
 teaching the young Emperor Charles V, 14-5249
 with scholars at Basle, by Felix Cogan, 14-5249

Essex, Earl of, by Isaac Oliver, 6-2003

Essex, Robert Devereux, 2d earl of, portrait, 5-1821

Espagnac, Comte d', as a boy, by Vigée Le Brun, 5-1878

Este, Alfonso d', portrait by Titian, 3-1109

Este, Beatrice d', portrait by Leonardo da Vinci, 3-825

Este, Francesco d', portrait by Velasquez, 4-1504

Euclid of Megara addressing his pupils, 2-704

Evelyn, John, discovers young Grinling Gibbons, by Edgar Bundy, 5-1729

Evening, by Corot, 7-2376

Evening meal, The, by Max Bohm, 10-3464

Eyck, Hubert van, Flemish painter (1366-1426)
 The Adoration of the Lamb, 4-1223
 (with Jan van Eyck), St. Cecilia, 6-1998
text, 4-1222, 1460

Eyck, Jan van, Flemish painter (1390-1440)
 Portrait of Jan Arnolfini and his wife, 4-1223
 (with Hubert van Eyck), St. Cecilia, 6-1998
text, 4-1222, 1225, 1460

KEY TO ILLUSTRATIONS (PAINTING)

F

Faed, John, Scottish painter (1820-1902)
Before Flodden Field, 12-4211

Faed, Thomas, Scottish painter (1826-1900)
Robert Burns and Highland Mary, 6-2137
Faerie Queen, An incident from Spenser's, 3-1121
Faistaff, Sir John, in scenes from Shakespearean plays, 3-841
Family life in old France, by Greuze, 5-1879
Fates, *see* Three Fates
Fénelon, François de Salignac de la Mothe, portrait, 18-6712
Ferdinand and Isabella at surrender of Granada, by Francisco Pradilla, 14-5043
Ferdinand of Austria, portrait by Velasquez, 1-71
Fergusons, The two, portrait by Raeburn, 6-2120

Ferrari, Gaudenzio, Italian painter (1484-1549)
St. Catherine, 6-1995
Festive board, The, by Jan Brueghel, 7-2567
Fidelity, by Greuze, 5-1879
Field of the Cloth of Gold, The, 5-1815
Fighting Temeraire, The, towed to her last berth, by Turner, 6-2233
Fire, The, dies down in the cottage, by Walter Langley, 11-3839
Firing party, The, by Edouard Manet, 7-2477
Fisherman of St. Ives, A, by Anders Zorn, 8-2864
Fishing boats, by Richard Bonington, 6-2233
Flamsteed, John, portrait, 1-281
Flight into Egypt, The, by Giotto, 2-694
Flight of Night, The, by William Morris Hunt, 10-3462
Flodden Field, scenes before and after the battle of, by J. Faed and William Eole, 12-4211
Flora, by Titian, 3-1111
Florence, artisans at work in its great day, 5-1734
Flower lady, The, by Rembrandt, 5-1716
Forge of Vulcan, The, by Velasquez, 4-1495
Fornarina, La, by Piombo, 3-1111
Fothergill, Doctor, portrait by Gilbert Stuart, 9-3329

Fragonard, Jean-Honoré, French painter (1732-1806)
Portrait of a boy as Pierrot, 5-1879
text, 5-1881
France, Anatole, portrait by Eugène Anatole Carrière, 8-2769

Franceschi, Piero dei (Francesca Piero della), Italian painter (c. 1416-1492)
Portrait of a lady, 2-696
text, 2-699

Francia (Francesco Raibolini), Italian painter (1448-1517)
St. Barbara, 4-1457
Franklin, Benjamin, at the French court, 10-3486
portrait, 10-3491; 12-4448; (in group), by John Trumbull, 4-1167
experimenting with a kite, 4-1249
hauling paper to his shop, by Edward Penfield, 12-4449
Franklin, Sir John, at the Admiralty, 8-2985
graves of his comrades, 8-2989
last days of his men, 8-2989
Frederick Barbarossa proclaimed king of Germany, 11-3967
Frederick I, King of Prussia, examining school children, 11-3971
Frederick the Great, portrait, 11-4048
welcomed by his subjects, 11-3971
Frederick William, Elector of Brandenburg, portrait on horseback by Wilhelm Camp-hausen, 11-3969
French Revolution, Birth of the, 6-2131
Rouget de Lisle singing the Marseillaise, by I. A. A. Pils, 10-3565
The march on Versailles, 10-3565
The taking of the Bastille, 6-2131
Fry, Elizabeth, portrait, 16-5701
visiting prisoners in Newgate prison, 16-5699

Fuller, George, American painter (1822-1883)
Winifred Dysart, 10-3461
text, 9-2232-34

Fulton, Robert, offering to build a steam navy for Napoleon, 17-6401
Funeral ceremony and bringing bridal gifts, ancient Cretan and Greek decorations, 2-451
Furies, The, drawings by Burne-Jones, 9-3225

Furstenberg, Paul W.
Wotan's farewell to Brunnhilde, 19-7149

G

Gagnon, Clarence A., Canadian painter (1881-)
Quebec village street in winter, 10-3707
text, 10-3703

Gainsborough, Thomas, English painter (1727-1788)
Lady Georgiana Spencer, 6-2118
Miss Haverfield, 1-68
Miss Linley and her brother, 1-68
Mr. Poyntz, 6-2114
The Baillie family, 7-2339
The Blue Boy, 7-2340
The Marsham family, 6-2119
The two daughters of the artist, 7-2340
Reconciliation with Sir Joshua Reynolds, by C. H. Lucy, 7-2333
text, 6-2109-11, 2230; 7-2331-32
Galahad, Sir, by Allan Stewart, 19-6947
by G. F. Watts, 19-6951
Galileo on trial before the Inquisition, 1-279
portrait, 1-281
scenes from his life, 1-285
Gallatin, Albert, portrait, 10-3491
Game of bat and ball, from 14th century manuscript, 6-1999
Gardiner, Bishop, portrait by Quentin Matsys, 4-1223
Gardiner, Mrs., and her children, portrait by Hoppner, 6-2112
Garland of fruit, A, by Rubens, 5-1589
Gay, John, by Sir Godfrey Kneller, 6-2003
Geese, early Egyptian drawing, 1-289
General, A, portrait by Giordano, 4-1457
George IV of England, by Hoppner, 6-2120
Ghirlandaio, Domenico, Italian painter (1449-1494)
The Virgin with infant Christ, 2-693
The Visitation, 2-690
text, 2-699
Gibbon, Edward, in Rome, by Charles Sheldon, 9-3203
Gibbons, Grinling, discovered by John Evelyn, by Edgar Bundy, 5-1729
Gibbs, Mrs., portrait by Sir William Orpen, 8-2861
Gilbert, Sir Humphrey, takes possession of Newfoundland, 14-4961
Gilbert, Sir John, English painter (1817-1897)
Scene from the Merchant of Venice, 3-983
Gioconda, La (Mona Lisa), portrait by Leonardo da Vinci, 3-829

Giorgione, Il (Giorgio Barbarelli), Italian painter (1477-1510)
Portrait of a general, 4-1457
text, 3-1106; 4-1462

Giotto di Bondone, Italian painter (c. 1266-1337)
St. Francis preaching to the birds, 6-1990
The death of St. Francis, 2-696
The flight into Egypt, 2-694
text, 2-697-98; 5-1736-37; 17-6163

Girardot, Georges, French painter (?-1914)
Columbia sighting Scotland's shore, 8-2842
Girl at a window, A, by Rembrandt, 5-1714
Girl dancing, by Watteau, 5-1880
Girl in white, Ernesta, by Cecilia Beaux, 10-3461

Girodet-Trioson, Anne Louis, French painter (1767-1824)
Napoleon as a boy, 6-2103
Gisze, George, portrait by Holbein, 4-1350
Gladstone and Disraeli, 7-2295
Globe Theatre, The, in Elizabethan days, 2-720
Godiva, Lady, pleading for her people, by E. Blair Leighton, 17-6295
Godslove, Sir Thomas and his son John, portrait by Holbein, 4-1350

Goes, Hugo van der, Flemish painter (c. 1435-1482)
Christ in the manger, 4-1221
St. Cecilia, 4-1223
The adoration of the shepherds, 4-1223
text, 4-1226

Goethe, Johann Wolfgang von, portrait by J. K. Stieler, 17-6412
Goldsmith, Oliver, in town, 5-1870
playing the flute, 5-1871
with Dr. Johnson, 5-1869; 6-2258

Goodwin, Albert, English painter (1860-1909)
The wreck of the Spanish Armada, 5-1819

Gotch, Thomas Cooper, English painter (1854-)
In the days of the folk song, 16-5739
Goths entering Rome, by Edward Wighill, 4-1195
Gower, Lady, portrait by Sir Thomas Lawrence, 6-2114

KEY TO ILLUSTRATIONS (PAINTING)

- Goya y Lucientes, Francisco**, Spanish painter and etcher (1746-1828)
 Bull fight, 4-1499
 Donna Isabella, 9-3074
 The paraisol, 4-1499
text, 4-1500
- Gozzoli, Benozzo**, Italian painter (1401-1428)
 Lorenzo de Medici as one of the Magi, 5-1745
 One of the Three Wise Men, 2-696
 St. Augustine at the School of Rome, 2-695
text, 2-698
- Grace before meat, by Chardin, 5-1875
 Grammont, Comtesse de, portrait by Sir Peter Lely, 6-2003
- Grand Duchess Eleanor, The, by Bronzino, 3-964
 Grant, Gen. Ulysses S., by Thomas Nast, 7-2441
 Gratz, Rebecca, portrait by Sully, 19-7164
 Gray, Asa, portrait by J. J. Cade, 19-7054
 Gray, Thomas, portrait, 6-2029
 Great oak, The, by Dupré, 7-2374
- Greco, El (Domenico Theotocopuli)**, Spanish painter (1545-1614)
 Portrait of an unknown man, 9-3073
 St. Basil, 4-1494
text, 4-1495
- Green, John Richard, dictating, by C. E. Brock, 9-3200
- Greene, Nathanael, portrait, 4-1165
- Greenleaf, Mrs. James, portrait by Gilbert Stuart, 9-3329
- Gregory I, and English slaves, 8-2846
- Gregory VII, Pope, and Henry IV of Germany at Canossa, 8-2849
- Grenville, Sir Richard, orders gunner to sink the Revenge, 14-4961
- Greuze, Jean Baptiste**, French painter (1725-1805)
 Family life in old France, 5-1879
 Fidelity, 5-1879
 Innocence, 5-1880
 Studies of three heads, 5-1873
 The broken pitcher, 5-1877
 The young rogue, 5-1878
text, 5-1882
- Grier, E. Wyly**, Canadian painter (1862-)
 Portrait of Henry Cockshutt, 10-3703
text, 10-3703
- Griffin, mural decoration from Knossos, Crete, 2-152
- Grimm, Jakob Ludwig Karl, portrait, 17-6414
- Griswold, Mrs. James C., portrait by Charles L. Elliott, 9-3329
- Gros, Baron Antoine Jean**, French painter (1771-1835)
 Murat at the battle of Aboukir, 6-2082
text, 6-2081
- Guericke, Otto von, demonstrating the power of vacuum, 4-1245
- Guinevere, Queen, in the nunnery garden, by Mary F. Raphael, 19-6948
- Gustavus Adolphus, King of Sweden, praying before battle, 15-5293
- Gustavus Vasa breaks up a drinking party, by Saloman, 15-5293
- Gutenberg, John, in his printing office, 9-3385
- Gwyn, Nell, by Sir Peter Lely, 6-2003
- H**
- Hagar and Ishmael, by Benjamin West, 9-3331
- Halley, Edmund, portrait, 1-281
- Hals, Frans**, Dutch painter (c. 1580-1666)
 A man with a sword, 5-1587
 Banquet of the officers of St. George's Shooting Company of Haarlem, 12-4181
 Portrait of a man and his wife, 9-3075
 Portrait of a woman, 5-1590
 Portrait of a woman and child, 1-69
text, 5-1588, 1590, 1712
- Hamilton, Alexander, portraits, 5-1694; 10-3491; by John Trumbull, 9-3328
- Hamlet, Scenes from, 3-840; 16-5761
- Hamman, Edouard Jean Conrad**, French painter
 Mozart playing before members of court of Vienna, 19-7074
- Hancock, John (in group), by John Trumbull, 4-1167
- Handel, George Friedrich, by Hudson, 19-7072
 as a boy, playing the clavichord at night, by Margaret I. Dicksee, 19-6913
- Hannah delivers the child Samuel to Eli, by F. W. W. Topham, 19-7154
- Hannibal's army crossing the Rhone, by Henri Motte, 4-1195
- Hare, Master, by Sir Joshua Reynolds, 6-2118
- Harp, A, Egyptian wall painting, 19-6899
- Harp of the winds, The, by Homer D. Martin, 10-3447
- Harpignies, Henri**, French painter (1819-1916)
 Late summer scene near Herisson, 9-3076
text, 7-2372
- Harrison, John, at work on his clocks, 17-6404
- Harvey explains to Charles Stuart how the blood circulates, 8-2727
- Hassam, Childre**, American painter (1859-)
 Isle of Shoals, 10-3463
text, 10-3456
- Hastings, Warren, portrait by Sir Thomas Lawrence, 6-2109
- Trial of, 15-5515
- Hatherell, John**, English painter.
 The bailiff's daughter, 11-4031
- Haverfield, Miss, by Gainsborough, 1-68
- Hawthorne, Nathaniel, crayon by S. W. Rowse, 13-4633
- Hay wain, The, by Constable, 6-2231
- Haydn, Franz Josef, portrait, 19-7073
- Heads, three studies by Greuze, 5-1873
- Heathfield, Lord, by Sir Joshua Reynolds, 6-2120
- Helena and Hermia in the garden, by Sir Edward Poynter, 3-835
- Helping mother, by Josef Israels, 8-2851
- Helst, Bartholomeus van der**, Dutch painter (1613-1670)
 Portrait of a woman, 8-2719
- Hemy, Thomas M.**, English painter
 The sinking of the Birkenhead, 3-886
- Henry IV, Scene from Shakespeare's play, 3-841
- Henry IV of Germany at Canossa, 8-2849
- Henry V of England at the battle of Agincourt, 5-1885
- Henry VIII, portrait by Holbein, 5-1822
 embarking at Dover for Calais, 5-1815
 founding St. Paul's School, 5-1824
- Herbert, John Rogers**, English painter (1810-1890)
 The first preaching of Christianity in Great Britain, 4-1431
- Hercules slaying the Hydra, 1-359
- Herder, Johann, portrait, 17-6269
- Herschel, Caroline, portrait, 1-281
- Herschel, Sir John, portrait, 1-281
- Herschel, Sir William, portrait, 1-281
- Hillingford, R.**, English artist
 Defeat of the French in Spain, 14-5043
- Hindu devotions, by Turner, 6-2233
- Hireling shepherd, The, by Holman Hunt, 6-2238
- History and Philosophy, wall panels by Puvion de Chavannes, 7-2481
- Hobbema, Meyndert**, Dutch painter (1638-1709)
 Avenue at Middelharnais, 5-1587
text, 5-1592
- Hofer, Andreas, the peasant governor of the Tyrolean, 13-4589
- Hogarth, William**, English painter (1697-1764)
 Self-portraits, 6-2005; 7-2329
 Polly Peachum, 6-2005
 The artist's servants, 9-3072
 The sister of the artist, 6-2005
text, 6-2004-05; 7-2327-28
- Holbein, Hans, the Elder**, German painter (c. 1460-1524)
 The death of Mary, 4-1347
text, 4-1345
- Holbein, Hans, the Younger**, German painter (1490-1533)
 self-portrait, 4-1351
 Edward VI, the boy king, 5-1823
 George Gisze, 4-1350
 Portrait of a man, 9-3074
 Portrait of a young man, 4-1351
 Portrait of Boniface Auerbach, 4-1350
 Portrait of Henry VIII, 5-1822
 Portrait of Margaret Wyatt, Lady Lee, 4-1349
 Portrait of Robert Cheseman, 4-1351
 Sir Thomas Godsalve and his son John, 4-1350
 The Madonna of the Burgomaster Meyer, 4-1352
text, 4-1245, 1348; 6-2000
- Holmes, Oliver Wendell, portrait, 13-4724
- Holy Family, The, by Michelangelo, 3-827
 by Raphael, 3-963
 by Rubens, 5-1584
 with St. Catherine, by Titian, 3-1111
 with St. Paul and St. George, by Giovanni Bellini, 3-1110
- The flight into Egypt, by Giotto, 2-694

KEY TO ILLUSTRATIONS (PAINTING)

Holzschuher, Jerome, portrait by Albrecht Dürer, 4-1347
 Homer, The world's poets pay homage to, by Ingres, 16-5749
Homer, Winslow, American painter (1836-1910)
 Gen. Francis C. Barlow receiving prisoners, 7-2443
 A rainy day in camp, 7-2443
 Northeaster, 10-3459
 The wreck, 10-3459
text, 10-3448-49
Hoppner, John, English painter (1758-1810)
 Mrs. Gardiner and her children, 6-2112
 Mrs. Jordan as the Comic Muse, 6-2116
 Portrait of George IV, 6-2120
 Portrait of the Countess of Oxford, 7-2338
 The Sackville children, 6-2118
text, 6-2112
Hornel, E. A., Australian painter (1864-)
 Listeners in the wood, 9-3309
 Summer, 18-6525
 Horse Fair, The, by Rosa Bonheur, 7-2369
 Horses in the harvest field, by Maud Hogarth Clay, 6-2011
 Home, Sir William, portrait, 4-1161
 Hudson, Henry, portrait, 1-245
 last voyage of, 11-4109
 sailing up the river of his name, 1-247
Hudson, Thomas, English painter (1701-1779)
 Portrait of George Frederick Handel, 19-7072
text, 7-2332
 Humboldt and a friend watching meteors, 10-3670
Hunt, William Holman, English painter (1827-1910)
 The hireling shepherd, 6-2238
text, 6-2236
Hunt, William Morris, American painter (1824-1879)
 The flight of Night, 10-3462
text, 9-3333

I

Iduna giving the golden apples to the gods, by J. Doyle Penrose, 15-5329
 Illustrations from old psalters and manuscripts, 6-2001
 In the garden, by George de Forest Brush, 10-3-64
 India. Presentation of first British ambassador to the Great Mogul of, 8-2823
 Indian encampment, by Ralph A. Blakelock, 10-3462
 Indian life, American, drawings by John White, 17-6334-36
 Indians, American, medicine dance of, 6-1915
 their first sight of white men, 1-247
 Industry, by Paul Veronese, 4-1454
 Infante Philipp Prosper, by Velasquez, 4-1494
Ingres, Jean, French painter (1780-1867)
 self-portrait, 9-3071
 M. Bertin, the Elder, 6-2079
 The apotheosis of Homer, 16-5749
text, 6-2080
 Initial letters, from an 11th century book, 6-2001
Inness, George, American painter (1825-1894)
 Coast-scene, 10-3463
 Peace and plenty, 10-3463
 The wood-gatherers, 10-3463
text, 9-3330
 Innocence, by Greuze, 5-1880
 Innocent X. Pope, by Velasquez, 4-1504
Isabey, Jean Baptiste, French painter (1767-1855)
 The Congress of Vienna, 11-3959
 Isabella, Donna, by Goya, 9-3074
 Isabella, Empress, by Titian, 3-1110
 Isle of Shoals, by Childe Hassam, 10-3463
Israels, Josef, Dutch painter (1824-1911)
 Children of the sea, 8-2864
 Helping mother, 8-2851
 The needlewoman, 8-2864
text, 8-2853
 Izzard, Mr. and Mrs. Ralph, by Copley, 9-3324

J

Jackson, Alexander Young, Canadian painter
 Winter, Georgian Bay, 10-3707
text, 10-3703
 Jackson, General Stonewall, portrait, 7-2431
 James III of Scotland, presented to the nobles, by William Eole, 12-4209

Janizaries on the charge, by Delacroix, 6-2082
 Jefferson, Thomas, portrait, 5-1694; (in group), by John Trumbull, 4-1167
Jefferys, Charles Wm., Canadian painter (1869-)
 Western sunlight, 10-3706
text, 10-3702
 Jennings, Sarah, by Sir Godfrey Kneller, 6-2002
 Jesus among the Doctors, by Luini, 3-1103
 Jesus, Infant, and the infant St. John, by Murillo, 4-1494
 Jesus, ancient mural paintings of, 2-577
 Joan of Arc, by Bastien-Lepage, 7-2479
 at Coronation of the King at Rheims, by Jules Lenepveu, 16-5816
 at the stake, by Jules Lenepveu, 16-5816
 Vision of, by G. W. Joy, 16-5817
 welcomed by the populace, by Jules Lenepveu, 16-5816
 John, King of England, signing the Great Charter, 5-1564
 John, portrait of a boy by Frederick Varley, 10-3709
John, Augustus, English painter (1878-)
 Portrait of George Bernard Shaw, 8-2861
 Portrait of Madame Suggia, 8-2861
text, 8-2859
Johnson, Eastman, American painter (1824-1906)
 The new bonnet, 10-3464
text, 10-3453
 Johnson, Dr. Samuel, and Oliver Goldsmith, 5-1869; 6-2258
 and his friends, 5-1867
 visiting Sir Joshua Reynolds, by Francis Barraud, 7-2333
Johnston, Frank H., Canadian painter
 A northern night, 10-3704
text, 10-3704
 Johnston, Joseph E., General, portrait, 7-2431
 Jones, John Paul, portrait, 17-6327
Jonson, Cornelius, English painter (1593-1664)
 Portrait of Sir John Coke, 6-2003
text, 6-2000
Jordaens, Jacob, Flemish painter (1593-1678)
 Singing the old songs, 5-1591
text, 5-1586
 Jordan, Mrs., as the Comic Muse, by Hoppner, 6-2116
 Josephine, Coronation of the Empress, by J. L. David, 6-2079
Joy, George W., Irish painter (1844-1925)
 Nelson's farewell to his grandmother, 6-2209
 Vision of Joan of Arc, 16-5817
 Julius II, Pope, portrait by Raphael, 3-962
 Justinian the Great choosing a wife, 13-4799

K

Kaulbach, Wilhelm von, German painter (1805-1874)
 Mozart listening to his Requiem, 19-6919
 Keats, John, reading his poetry, 7-2488
 Kepler, John, listening to Tycho Brahe, 1-204
 Kerr, Lady, portrait by Romney, 7-2338
 King of Rome, Napoleon's son, by Sir Thomas Lawrence, 1-151
 King's Mountain, Battle of, 4-1171
 Kingsley, Charles, points Westward Ho, 11-3893
 Kleist, Heinrich Wilhelm von, portrait, 17-6270
 Klopstock, Friedrich Gottlieb, portrait, 17-6270
Kneller, Sir Godfrey, Dutch-English painter (1646-1723)
 Portrait of Dr. John Wallis, 6-2002
 Portrait of John Gay, 6-2003
 Portrait of Sarah Jennings, 6-2002
 Portrait of the Duke of Marlborough, 6-2002
text, 6-2000
 Knight and a lady, A, by Albrecht Dürer, 4-1348
 Knight at the ford, The, by J. E. Millais, 6-2239
 Knight, Vigil of a, before the altar, by John Pettie, 14-5197
 Knights of King Arthur, by Burne-Jones, 19-6946
Knowles, Farquhar McGillvray, American painter (1860-)
 The thunder cloud, 10-3710
text, 10-3704
Knowles, G. Sheridan, English painter (1863-)
 King Wenceslas and his page, 3-842
 Kosciusko, Thaddeus, portrait, 4-1161
Kreighoff, Cornelius, Canadian painter (1812-1872)
 The toll-gate, 10-3699
text, 10-3700
 Kublai Khan travelling, illustration from old manuscript, 1-85

KEY TO ILLUSTRATIONS (PAINTING)

L

Lady, A, ancient Roman portrait, 2-452
 portrait by Allan Ramsay, 6-2109
 portrait by François Boucher, 15-5311
 portrait by Piero della Francesca, 2-696
 portrait by Raeburn, 6-2115
 portrait by Velasquez, 4-1504
 playing on the clavichord, by Jan Miense Molenaer, 19-6901
 reading a letter, by Terborch, 5-1587
 Lady Cockburn and her children, by Sir Joshua Reynolds, 7-2338
 Lady Craven, portrait by Romney, 6-2115
 Lady Georgiana Spencer, portrait by Gainsborough, 6-2118
 Lady Godiva pleading for her people, by E. Blair Leighton, 17-6295
 Lady Gower, portrait by Sir Thomas Lawrence, 6-2114
 Lady Jean, portrait of the artist's daughter, by George Bellows, 10-3464
 Lady Kerr, portrait by Romney, 7-2338
 Lady Wentworth, portrait by Copley, 9-3324
 Lady Williams and child, by Ralph Earle, 3-969
La Farge, John, American painter (1835-1910)
 The Muse of Painting, 10-3462
text, 9-3334, 3336
 Lafayette, Marquis de, portrait, 4-1161
 La Fontaine, Jean de, portrait, 18-6712
 Lancelot and Elaine, by Sidney Paget, 19-6946
 Landing of Cleopatra, The, by Claude Lorrain, 5-1875
 Landing of Columbus, The, 1-240; by John Vanderlyn, 1-82
 Landscape, by Corot, 7-2376; by Gustave Courbet, 7-2477; by A. B. Durand, 9-3335
Landseer, Sir Edwin H., English painter (1802-1873)
 Newfoundland dog, 2-710
 Wild cattle, 4-1258
text, 6-2235; 12-4361
Langley, Walter, English painter (1852-1922)
 The fire dies down in the cottage, 11-3839
 Langton, Stephen, persuading the barons to help him obtain Magna Carta, 8-2850
 Lao-tsze, founder of Taoism, incident in his life, 9-3089
 La Salle, Robert Cavalier, Sieur de, portrait, 1-245
 Fleet of, 2-676
 Last days in the old home, by Robert Martineau, 8-2681
 Last Supper, The, by Leonardo da Vinci, 3-830
 Late summer, by Harpignies, 9-3076
 Laud, Archbishop, gives Strafford a last blessing, 11-3844
Lawrence, Sir Thomas, English painter (1769-1830)
 portrait, 7-2327
 as a boy, by Margaret Dicksee, 7-2329
 A boy with a kid, 6-2119
 Portrait of Lady Gower, 6-2114
 Portrait of Mrs. Siddons, 7-2339
 Portrait of Warren Hastings, 6-2109
 The Calmady children, 9-3072
 The young King of Rome, 1-151
text, 7-2335
 Lear, King, renouncing his daughter Cordelia, by Ford Madox Brown, 3-987
Le Brun, Vigée, French painter (1755-1842)
 Madame Le Brun and her daughter, 5-1880
 The Comte d'Espagnac as a boy, 5-1878
text, 5-1882
 Leicester, Robert Dudley, Earl of, portrait, 5-1821
Leighton, E. Blair, English painter (1853-)
 Lady Godiva pleading for her people, 17-6295
Leighton, Frederick, Lord, English painter and sculptor (1830-1896)
 Britons trading with the Phoenicians, 4-1431
text, 6-2236; 13-4856
Lely, Sir Peter, Dutch-English painter (1618-1680)
 Portrait of the Comtesse de Grammont, 6-2003
 Portrait of the Duchess of Cleveland, 6-2003
 Portrait of Mary Davis, 6-2002
 Portrait of Nell Gwyn, 6-2003
text, 6-2000
Le Nain, The brothers, French painters (1588?-1648; 1593?-1648; 1607?-1677)
 Peasants at supper, 5-1878
 Piper among the hills, 5-1875
text, 5-1874

Lenbach, Franz von, German painter (1836-1904)
 Portrait of Otto von Bismarck, 8-2863
text, 8-2852-53
Lenepveu, Jules E., French painter (1819-1898)
 Joan of Arc at the king's coronation, 16-5816
 at the stake, 16-5816
 welcomed by the populace, 16-5816
Leonardo da Vinci, *see* Vinci
 Lessing, Gotthold Ephraim, portrait, 17-6269
 Lesson in anatomy, The, by Rembrandt, 5-1716
Leutze, Emanuel, American painter (1816-1868)
 Milton playing the organ for Cromwell, 12-4434
 Washington crossing the Delaware, 4-1169
text, 9-3333
Lhermitte, Léon, French painter (1844-1295)
 Paying the reapers, 9-3076
Lieb, Michael, *see* Munkácsy
 Lincoln, Abraham, and his Cabinet, by Francis Bicknell Carpenter, 7-2426
 Lindow, Mr. and Mrs., portrait by Romney, 6-2114
 Linley, Miss, and her brother, portrait by Gainsborough, 1-68
Linnell, John, English painter (1792-1882)
 The noonday rest, 12-4503
Lippi, Fra Filippo, Italian painter (1406?-1469)
 The Madonna adoring the Child, 2-690
text, 2-699
 Listeners in the wood, The, by E. A. Hornel, 9-3309
 Lister, Lord, portrait, 15-5485
 Livingston, Robert (in group), by John Trumbull, 4-1167
 Livingstone, David, his last journey, 2-464
Lochner, Stephen, German painter (1400?-1451)
 The adoration of the Magi, 4-1343
text, 4-1343-44
 Longfellow, Henry Wadsworth, portrait, 13-4727
 Looking toward the sea, by Alexander H. Wyant, 10-3458
Lorenzetti, Pietro, Italian painter (?-1348?)
 The Madonna with St. Francis and St. John, 2-691
 Lorenzo and Isabella, by Sir J. E. Millais, 6-2238
 Lorenzo de Medici as one of the Magi, by Benozzo Gozzoli, 5-1745
Lorrain, Claude, French painter (1600-1682)
 David at the Cave of Adullam, 5-1883
 The landing of Cleopatra, 5-1875
text, 5-1876
 Lost mind, The, by Elihu Vedder, 10-3462
Lotto, Lorenzo, Italian painter (c. 1480-1556)
 Portrait of Laura de' Pola, 3-1111
text, 3-1104
Loudan, Monat, British painter
 Elaine the Fair, 16-5822
 Louis IX of France as a boy, and his mother, by Cabanel, 16-5815
 captured by the Saracens, 7-2582
 on his throne, 10-3428
 Louis XI visiting a peasant, by J. Seymour Lucas, 10-3435
 Louis XVI among his subjects, 10-3435
 and the royal family at Varennes, 6-2126
 in prison, by E. M. Ward, 6-2133
Lucas, John Seymour, English painter (1849-1923)
 Louis XI visiting a peasant, 10-3435
 Sir Francis Drake playing bowls, 5-1819
Lucy, Charles H., English painter
 The reconciliation of Sir Joshua Reynolds and Gainsborough, 7-2333
Luini, Bernardino, Italian painter (1465?-1540?)
 Jesus among the Doctors, 3-1103
text, 3-1107
 Lute player, The, by Caravaggio, 9-3070
Lyall, Laura A., *see* Muntz

M

Maccari, Cesare, Italian painter
 Cicero's oration against Catiline, 4-1367
 Regulus going back to Carthage to die, 4-1365
Macdonough, Thomas, portrait, 17-6327
MacLise, Daniel, British painter (1806-1870)
 A scene from Twelfth Night, 3-987
 Wellington and Blücher at Waterloo, 6-2198
MacWhirter, J., English artist
 Childe Roland to the dark tower came, 9-3245
 Madison, James, portrait, 5-1694; 11-3947
 Madonna, The, adoring the Child, by Filippo Lippi, 2-690
 and angels (The Assumption), by Murillo, 4-1497

KEY TO ILLUSTRATIONS (PAINTING)

- Madonna, The, and Child**, by Fra Angelico, 2-694
by Giovanni Bellini, 3-1110; 4-1457
by Botticelli, 2-690; (with angels), 2-695
(of the Basket), by Correggio, 3-1105
(with St. Jerome and angel), by Correggio, 3-1111
by Lorenzo di Credi, 2-690
by Duccio, 2-697
(with saints and angels), by Ghirlandaio, 2-693
(the flight into Egypt), by Giotto, 2-694
(of the Burgomaster Meyer), by Holbein, 4-1352
by Filippo Lippi, 2-690
(with St. Francis and St. John), mural by Lorenzetti, 2-691
by Quentin Matsys, 4-1223
by Memling, 4-1224
(Holy Family), by Michelangelo, 3-827
(with angels), by Laura Muntz, 10-3708
by Murillo, 4-1497
(with saints and angels), by Perugino, 3-964
by Raphael, 3-962, 963
(del Granduca), by Raphael, 3-961
(La Belle Jardinière, with St. John), by Raphael, 3-963
(of the Chair), by Raphael, 3-964
(Sistine), by Raphael, 3-962
by Roger Van der Weyden, 4-1223
(of the Cuccina family), by Veronese, 3-1112
(of the Rocks, with St. John and an angel), by Leonardo da Vinci, 3-825
(with St. Anne), by Leonardo da Vinci, 3-825
See also Virgin
- Maes, Nicolaes**, Dutch painter (1632-1693)
Young girl peeling apples, 5-1593
- Magdalen**, by Veronese, 3-1112
- Magi**, *see* Wise Men
- Magyars in Austria**, 17-6190
- Makowski**
The ceremony of the kiss, 16-5697
- Man**, portrait by Holbein, 9-3074
portrait by Thierry Bouts, 4-1228
- Man and his wife**, portrait by Frans Hals, 9-3075
- Man, Study of a**, by Rembrandt, 5-1716
- Man with a sword**, by Frans Hals, 5-1587
- Man with the hoe, The**, by Jean François Millet, 8-3003
- Manet, Edouard**, French painter (1832-1883)
Boy with a sword, 7-2479
The balcony, 7-2474
The firing party, 7-2477
text, 7-2476
- Manning, Cardinal**, portrait by G. F. Watts, 6-2237
- Mantegna, Andrea**, Italian painter (1431-1506)
St. George, 3-1112
text, 3-1103
- Manuscripts, Illuminated**, 6-2001
- Marco Polo**, portrait, 1-85
landing at Ormuz, 1-85
- Mares and their foals**, by A. J. Munnings, 8-2863
- Margaret, Princess**, daughter of Philip IV, portrait by Velasquez, 4-1503
- Margaret, wife of Malcolm III**, arriving in Scotland, by William Eole, 12-4206
- Maria Theresa** appealing to the Hungarian nobles, 17-6193
- Mariana, Queen of Austria**, portrait by Velasquez, 4-1504
- Marie Antoinette and her children**, by Vigée-Le Brun, 6-2009
and her family in prison, by E. M. Ward, 6-2133
facing the mob in the palace, by Alfred Elmore, 6-2126
on her way to the scaffold, 6-2133
- Maris, Matthew**, Dutch painter (1839-1917)
Outskirts of a town, 8-2864
- Marlon, Francis**, portrait, 4-1165
- Mark Antony at the death of Caesar**, by Joseph Désiré Court, 11-3929
- Marks, Henry Stacy**, English painter (1829-1898)
A meeting of parrots, 10-3619
- Marlborough, Duke of**, portrait by Sir Godfrey Kneller, 6-2002
on the battlefield, 6-2099
- Marquand, Henry G.**, portrait by Sargent, 10-3460
- Marriage at Cana, The**, by Paul Veronese (Dresden Gallery), 3-1110; (Louvre), 4-1454
of St. Catherine, by Tintoretto, 3-1112
of the two St. Catherines, by Borgognone, 3-1105
- Marseillaise, Rouget de Lisle singing the**, by I. A. A. Pils, 10-3565
- Marsham family, The**, by Sir Thomas Gainsborough, 6-2119
- Martin, Homer D.**, American painter (1836-1897)
The harp of the winds, 10-3447
Sand dunes, 10-3459
text, 10-3448
- Martineau, Robert**, American painter (1826-1869)
The last days in the old home, 8-2681
- Mary, The death of**, by Holbein, the Elder, 4-1347
See also Madonna and Virgin
- Mary, Queen of Hungary**, portrait by Velasquez, 4-1503
- Mary, Queen of Scots**, portrait, 12-4204; 5-1821
compelled to abdicate, 12-4213
escaping from Loch Leven castle, 12-4213
mounting the scaffold, 12-4213
- Maskelyne, Nevil**, portrait, 1-281
- Mather, Cotton**, portrait, 12-4445
- Matsys, Quentin**, Flemish painter (15th century)
Portrait of Bishop Gardiner, 4-1223
The Virgin and Child, 4-1223
text, 4-1226-27
- Mauve, Anton**, Dutch painter (1838-1888)
Spring, 8-2853
The meadow, 8-2853
- Maximilian receiving an ambassador from Venice**, by Carl Becker, 11-3961
- Massacre of St. Bartholomew, The**, 10-3429
- Mayflower, The**, in Plymouth harbor, 2-545
- Mazzini in prison**, 13-4589
- Meadow, The**, by Mauve, 8-2853
- Measure for Measure, Scene from**, 3-982
- Medici, Ferdinand de**, portrait by Bronzino, 3-963
- Medici, Lorenzo de**, as one of the Magi, by Benozzo Gozzoli, 5-1745
- Medici, Maria de**, portrait by Bronzino, 9-3074
- Medici, Piero de**, portrait by Bronzino, 3-964
- Medicine dance of the Winnebago Indians**, 6-1915
- Mediterranean scene, A**, by Joseph Vernet, 5-1875
- Meeting of Jacob and Rachel**, by Palma Vecchio, 3-1111
- Meissonier, Jean Louis Ernest**, French painter (1815-1891)
Napoleon at the battle of Friedland, 10-3569
Napoleon on his retreat from Moscow, 6-2212
text, 6-2082
- Melchers, Gari**, American painter (1860-)
Mother and child, 10-3464
text, 10-3455
- Memling, Hans**, Flemish painter (c. 1430-1494)
Portrait of an old man, 4-1228
Portrait of Marie Portinari, 4-1228
Portrait of Thomas Portinari, 4-1228
St. Benedict, 6-1936
The death of St. Ursula, 6-1993
The Virgin and Child, 4-1224
text, 4-1225
- Memmi (Simone Martini)**, Italian painter (1282-1349)
The Angel of the Annunciation, 2-696
text, 2-697
- Menippus**, portrait by Velasquez, 4-1502
- Merchant of Venice, The, Scene from**, by Sir John Gilbert, 3-983
- Mermaid Tavern, At the**, 2-723
- Merry Wives of Windsor, The, Scene from**, 3-841
- Mesdag, Hendrik Willem**, Dutch painter (1831-1915)
Beaching Dutch boats, 8-2864
text, 8-2854
- Messina, Antonello da**, Italian painter (c. 1430-1479)
self-portrait, 3-1105
A portrait, 3-1110
text, 3-1104; 4-1460
- Michelangelo, Buonarroti**, Italian painter and sculptor (1475-1564)
portrait, 1-61
The Ceiling of the Sistine Chapel, 3-822, 827
The Creation of Adam (detail of above), 3-826
The Holy Family, 3-827
The Three Fates, 3-826
Three heads in the Sistine Chapel, 3-823
text, 3-830-31; 5-1735, 1740; 9-3069; 13-4607-08; 17-6310
- Miffin, Mrs. Rebecca Edgehill**, and granddaughter, by Charles Willson Peale, 3-971
Samuel, portrait by Charles Willson Peale, 3-971
- Mill, John Stuart**, and Thomas Carlyle, by Sidney Seymour Lucas, 9-3313
- Mill on the dyke, The**, by Jacob Ruisdael, 5-1587

KEY TO ILLUSTRATIONS (PAINTING)

Millais, Sir John Everett, English painter (1829-1896)
 A scene from As You Like It, 3-839
 Lorenzo and Isabella, 6-2238
 Sir Walter Raleigh as a boy, 5-1812; 11-4065
 The knight at the ford, 6-2239
text, 6-2236

Millet, Jean François, French painter (1814-1875)
 A flock of sheep, 7-2376
 A mother and her children, 7-2373
 Burning weeds, 7-2371
 The Angelus, 1-71
 The man with the hoe, 8-3003
 The shepherdess, 7-2373
text, 7-2371-72

Milton, John, portraits, 4-1235
 and his first love, by G. H. Boughton, 4-1234
 dictating to his daughter, by Munkácsy, 4-1237
 playing the organ for Cromwell, by E. Leutze, 12-4434
 shaking hands with Marvell, by G. H. Boughton, 4-1237

Miracle of St. Hugo, The, by Francisco Zurbaran, 4-1494

Mistletoe bough, The, by Charles Sheldon, 10-3607

Mitchell, Silas Weir, portrait, 13-4823

Mocenigo, Doge Giovanni, portrait by Gentile Bellini, 3-1105

Mohammed dictating the Koran, 9-3091

Mohammed II, Sultan, portrait, by Gentile Bellini, 3-1105

Molenaer, Jan Mienze, Dutch painter (1605-1668)
 A lady playing on the clavichord, 19-6901

Mona and the merman, by Thomas Maybank, 1-60

Mona Lisa (La Gioconda), by Leonardo da Vinci, 3-829

Monet, Claude, French painter (1840-1926)
 A river in summer, 7-2477
 The Seine at Argenteuil, 7-2477
text, 7-2481-82; 8-2709

Monk, George, portrait, 2-549

Montenard, Frédéric, French painter (1849-)
 A pastoral scene, 8-2857
text, 8-2856

Montesquieu, Baron Charles de, portrait, 18-6713

Moore, Albert J., English painter (1841-1893)
 The quartette, 6-2240
text, 6-2236

Moran, Thomas, American painter (1837-1926)
 Bringing home the cattle, 10-3458
text, 9-3332

More, Sir Thomas, and his daughter Margaret Roper, by J. R. Herbert, 14-5125

Moreau, Gustave, French painter (1763-1813)
 St. Cecilia, 7-2478
text, 7-2482

Moretto da Brescia, Italian painter (c. 1498-c. 1554)
 A nobleman, 3-1112
text, 3-1107

Morgan, Daniel, portrait, 4-1165

Morland, George, English painter (1763-1804)
 self-portrait, 7-2329
text, 6-2230; 7-2334

Morning hymn at Johann Sebastian Bach's, The, by T. E. Rosenthal, 19-7070

Morpheus, In the arms of, by W. Reynolds-Stephens, 9-3230

Morris dance, A, by T. C. Gotch, 16-5739

Morse experimenting with the telegraph, by Charles Sheldon, 17-6239

Mother, The young, by Gerard Douw, 5-1591

Mother and child, by Xavier Bricard, 8-2862

by Ralph Earle, 3-969
 by Vigée Le Brun, 5-1880
 by Gari Melchers, 10-3464
 by Rubens, 5-1589
See also Madonna

Mother and children, by Jean François Millet, 7-2373

Mother feeding her child, by Mary Cassatt, 10-3464

Mother, Helping, by Josef Israels, 8-2851

Mother of the artist, The, by Rembrandt, 5-1716
 by Whistler, 10-3446

Motley, John Lothrop, etched portrait by W. H. W. Bicknell, 13-4814

Mountain ford, The, by Thomas Cole, 10-3458

Mozart listening to his Requiem, by Kaulbach, 19-6919
 playing before members of the court of Vienna, by E. Hamman, 19-7074
 with his father and sister, 19-6919

Muir, John, etched portrait, 19-7057

Mummy case, portrait from, 2-452

Munkácsy, Michael (Michael Lieb), Hungarian painter (1844-1900)
 Milton dictating to his daughters, 4-1237

Munnings, A. J., English painter (1878-)
 Mares and their foals, 8-2863
text, 8-2860

Muntz, Laura (Lyall), Canadian painter
 Madonna, The, with angels, 10-3708
text, 10-3704

Murat at the battle of Aboukir, by Gros, 6-2082

Murillo, Bartolomé Estéban, Spanish painter (c. 1617-1682)
 Spanish flower-girl, 9-3070
 The infant Jesus and the infant St. John, 4-1494
 The infant St. John, 4-1494
 The Madonna with angels, 4-1497
 The Madonna and Child, 4-1497
text, 4-1500

Muse of Painting, The, by John La Farge, 10-3462

Musical instruments, Primitive, 19-6899-6900

My cousin Candida, by Zuloaga, 8-2854

My daughter, by Frank W. Benson, 10-3461

N

Nansen starting on his great journey, 13-4711
 telling of his adventures, 13-4709

Napoleon as a boy at the military academy, by Reailler-Dumas, 6-2209
 at Fontainebleau, 10-3562
 at St. Helena, 6-2103
 at the battle of Arcola, 6-2198
 at the battle of Friedland, by Meissonier, 10-3569
 crossing the Alps, by Delaroche, 6-2205
 funeral honors, 6-2206
 in a cottage, 16-5921
 on board the Bellerophon, by Orchardson, 6-2212
 on the evening of Waterloo, by Ernest Crofts, 6-2211
 on the retreat from Moscow, by Meissonier, 6-2212
 when a boy, sketch by M. Girodet, 6-2103

Napoleon's son (King of Rome), by Sir Thomas Lawrence, 1-151

Nast, Thomas, American artist (1840-1902)
 Portrait of Gen. Ulysses S. Grant, 7-2441

Nativity, The, by Fra Angelico, 2-694

Neal, David, English painter (1678-1743)
 Cromwell visiting John Milton, 4-1241

Nebuchadnezzar, Madness of, by Charles Sheldon, 2-653

Needlewoman, The, by Josef Israels, 8-2864

Nelson, portrait, 6-2199
 bidding farewell to his grandmother, by George W. Joy, 6-2209
 on his flagship, The Victory, 6-2210
 receiving the Spanish officers' swords, 6-2205

New bonnet, The, by Eastman Johnson, 10-3464

Newfoundland dog, by Landseer, 2-710

Newton, Lord, by Raeburn, 7-2339

Newton, Sir Isaac, portrait, 1-281
 scenes from his life, 1-285; 4-1247

New York City, from old prints, 2-556; 5-1695; 10-3496

Nicol, J. Watson, English painter
 Rob Roy and Bailie Nicol Jarvie, 7-2629

Nietzsche, etched portrait by Hans Olde, 17-6415

Nightingale, Florence, portrait, 16-5701, 5703

Nobleman, A, by Moretto, 3-1112

Noonday rest, The, by John Linnell, 12-4503

Nordenskiöld, Adolf Eric, the explorer, 8-2988

Norsemen, *see* Vikings

Northeast, by Winslow Homer, 10-3459

Northern night, by F. H. Johnston, 10-3704

Nuremberg town-band, by Albrecht Dürer, 19-7071

Nut-gatherers in the forest, by Homer Watson, 10-3701

O

Old cook, The, by Velasquez, 9-3072

lady, An, portrait by Rembrandt, 1-68

man, An, portrait by Memling, 4-1228

Mortality, A scene from, by Orchardson, 7-2625

school, An, by Thomas Webster, 16-5683

woman cutting her nails, by Rembrandt, 5-1708

KEY TO ILLUSTRATIONS (PAINTING)

Olde, Hans, German artist
Etched portrait of Nietzsche, 17-6415
Olivares, Duke of, portrait by Velasquez, 4-1502
Oliver, Isaac, English painter (c. 1566-1617)
Portrait of the Earl of Essex, 6-2003
text, 6-2000
Olympian games, Ancient, 3-1075
On the river in summer, by Paul Chabas, 8-2862
Ophelia in her madness, 3-840
Opie, John, English painter (1761-1807)
Portrait of F. Bartolozzi, 6-2109
text, 6-2112
Orchardson, Sir William Quiller, Scottish painter (1835-1910)
A scene from Peveril of the Peak, 7-2628
Napoleon on board the Bellerophon, 6-2212
text, 6-2236
Orpen, Sir William, British painter (1878-)
Portrait of Mrs. Gibbs, 8-2861
text, 8-2859
Oxenkirts of a town, by Matthew Maris, 8-2864
Oxen drinking, by Horatio Walker, 10-3705
Oxen going out to plow, by Troyon, 7-2376
Oxford, Countess of, portrait by Hoppner, 7-2338

P

Paget, Sidney, English painter
Lancelot and Elaine, 19-6946
Parasol, The, by Goya, 4-1499
Parrots, The meeting of, by Henry Stacy Marks, 10-3619
Parthenon, The, by F. E. Church, 10-3458
Pastoral idyl, A, by François Boucher, 5-1875
Pastoral scene, A, by Frédéric Montenard, 8-2857
Patinir, Joachim, Flemish painter (1485-1524)
St. Christopher, 6-1993
Paying the reapers, by Lhermitte, 9-3076
Peace and plenty, by George Inness, 10-3463
Peachum, Polly, by Hogarth, 6-2005
Peale, Charles Willson, American painter (1741-1827)
in his museum (self-portrait), 9-3326
portrait by Benjamin West, 9-3329
Portrait of Samuel Mifflin, 3-971
Portrait of Mrs. Rebecca Mifflin with her granddaughter, 3-971
text, 9-3327
Pearl necklace, The, by Vermeer, 9-3075
Peary and his dogs crossing an open channel, 13-4709
Peasants at supper, by the brothers Le Nain, 5-1878
Pedro, Don, declaring the independence of Brazil, 19-7043
Penfield, Edward, American painter (1866-1925)
Young Benjamin Franklin hauling paper to his printing shop, 12-4449
Penn, William, portrait, 2-549; 12-4153
Pennrose, J. Doyle, English painter (1862-)
Iduna and the golden apples, 15-5329
The Venerable Bede and his scribe, 1-122
Pepys finds John Evelyn at his diary, by Charles Sheldon, 5-1726
Perry, Commodore, at the battle of Lake Erie, by William H. Powell, 17-6332
Perseus rescuing Andromeda, 15-5442
Perugino (Pietro Vannucci), Italian painter (1476-1515)
The Virgin and Child, 3-964
text, 3-959
Peter the Great, scenes from his life, 16-5695
Pettie, John, Scottish painter (1839-1893)
Bonnie Prince Charlie, 15-5638
The Puritan, 6-1975
The Royalist, 6-1975
Vigil of a knight before the altar, 14-5197
Peveril of the Peak, Scene from, by Orchardson, 7-2628
Pharaoh on his way to the temple, 3-813
Philip, the Metropolitan, refuses his blessing to Ivan the Terrible, 16-5693
Philip II of Spain receiving a deputation from the Low Countries, 14-5039
Philip IV of Spain, portrait by Velasquez, 4-1501, 1503
Philosophy and History, wall panels by Puvis de Chavannes, 7-2481
Pils, Isidore Alexandre Augustin, French painter
Rouget de Lisle singing the Marseillaise, 10-2565
Pied Piper of Hamelin, The, by A. A. Dixon, 1-225-226
Pilgrims, Embarkation of the, 2-545
Pilgrim's Progress, illustrations, 15-5544-53
Pinckney, Charles Cotesworth, portrait, 5-1694
Pinkney, Isabel, portrait by Spencer Watson, 8-2861
Pinturicchio (Bernardino di Betti), Italian painter (1454-1513)
Portrait of Raphael, 3-964
St. Catherine of Alexandria, 3-962
text, 3-959
Piombo, Sebastiano del, Italian painter (1485-1547)
La Fornarina, 3-1111
text, 3-1106
Piper among the hills, A, by Le Nain, 5-1875
Pissarro, Camille, French painter (1831-1903)
The quay at Rouen, 8-2713
text, 7-2482
Players at tric-trac, by Teniers, 5-1593
Plymouth, Mass., Leyden Street, in olden days, 12-4446
Poe, Edgar Allan, engraved portrait by Timothy Cole, 13-4724
Poetry, drawing by Raphael, 1-217
Pola, Laura de', by Lorenzo Lotto, 3-1111
Polish soldier, A, by Rembrandt, 5-1715
Pompeii, Wall-pictures from, 2-452
Pond, The, by Rousseau, 7-2374
Pool of London, The, by W. L. Wyllie, 15-5357
Pope, Alexander, portrait, 4-1357
Poringland oak, The, by Crome, 6-2231
Porter, Endymion, portrait by William Dobson, 6-2003
Portinari, Marie, portrait by Memling, 4-1228
Portinari, Thomas, portrait by Memling, 4-1228
Pounds, John, of Portsmouth, and his pupils, 17-6140
Poussin, Nicholas, French painter (1594-1665)
Dance of the Seasons to the music of Time, 11-4131
Shepherds of Arcadia, 5-1875
text, 5-1874, 1876
Powell, William H., American painter
Commodore Perry at the battle of Lake Erie, 17-6332
Poynter, Sir Edward J., English painter (1836-1919)
Helena and Hermia in the garden, 3-835
Poyntz, Mr., portrait by Gainsborough, 6-2114
Pradilla, Francisco, Spanish painter (1848-1921)
Boabdil surrendering the keys of Granada, 14-5043
Preaching at the village cross in Tudor times, by Robertson, 3-1123
Princes in the Tower, The two little, by Sir J. E. Millais, 1-149
Prinsep, Val, English painter (1838-1904)
At the Golden Gate, 6-2240
Printing in early days, 9-3385, 3387
Procession, The, by Lucien Simon, 8-2862
Prodigal Son, The, by Teniers, 5-1591
Psyche, by Alfred de Curzon, 9-3229
Psyche's garden, by J. W. Waterhouse, 9-3229
Ptolemy, portrait, 1-201
Puritan, The, by John Pettie, 6-1975
Putnam, Israel, portrait, 4-1165
Puvis de Chavannes, Pierre, French painter (1824-1898)
A bishop and St. Geneviève, 7-2478
Philosophy and History, mural panels, 7-2481
The sacred grove, 7-2475
The shepherd's song, 7-2478
text, 7-2482

Q

Quakers on trial, 2-551
Quartette, The, by Albert Moore, 6-2240
Quay at Rouen, The, by Pissarro, 8-2713
Quebec, battle of the Plains of Abraham, 3-776
village street in winter, by Clarence A. Gagnon, 10-3707

R

Rae, Henrietta, American painter (1860-1928)
Apollo and Daphne, 9-3231
Raeburn, Sir Henry, English painter (1756-1823)
portrait, 7-2327
Portrait of a lady, 6-2115
Portrait of Lord Newton, 7-2339
Portrait of Sir John Sinclair, 6-2115
Portrait of the two Fergusons, 6-2120
text, 6-2112; 7-2330-31

KEY TO ILLUSTRATIONS (PAINTING)

- Rainy day, A, by Frederick Walker, 8-2921
in camp, by Winslow Homer, 7-2443
- Raleigh, Sir Walter, portraits, 1-245; 5-1821
as a boy, by Sir J. E. Millais, 5-1812
on his way to the Tower, 5-1812
scenes from his life, 14-4958-59
Spenser reading poems to, 3-1117, 1122
- Ramsay, Allan, English painter (1713-1784)
Portrait of a lady, 6-2109
Portrait of his wife, 6-2115
text, 6-2112
- Raphael, Mary F., English painter
Queen Guinevere in the nunnery garden, 19-6948
- Raphael Sanzio, Italian painter (1483-1520)
portrait by Pinturicchio, 3-964
Fresco in the Vatican, 3-957
La Belle Jardinière, 3-963
Poetry, a drawing, 1-217
Portrait of Balthasar Castiglione, 3-964
Portrait of Pope Julius II, 3-962
St. John in the desert, 3-964
The Holy Family, 3-963
The Madonna and Child (Pinakothek), 3-963; (Prado), 3-962
The Madonna del Granduca, 3-961
of the chair, 3-964
Sistine, 3-962
The School of Athens, 2-700
text, 3-959-60; 17-6300
- Reailler-Dumas, French painter (1860-)
Napoleon as a boy at Brienne, 6-2209
- Récamier, Madame, portrait by J. L. David, 6-2078
- Regatta day, by Lucien Simon, 8-2857
- Regulus, the Roman patriot, 1-125
going back to Carthage to die, by Cesare Maccari, 4-1365
- Reign of Terror in France, The, 10-3567
- Rembrandt Harmensz. Van Rijn, Dutch painter (1606-1669)
self-portraits, 5-1713, 1716
A girl at a window, 5-1714
An old woman cutting her nails, 5-1708
A Polish soldier, 5-1715
Portrait of an old lady, 1-68
Portrait of a woman, 5-1716
Portrait of Burgomaster Eleazer Swalmius, 5-1714
Portrait of Saskia, 5-1715
Portrait of the artist's mother, 5-1716
Portrait of William of Orange, 5-1714
Study of a man, 5-1716
Suzanna van Colter with her little daughter, 5-1715
The calligraphist, 5-1716
The flower lady, 5-1716
The lesson in anatomy, 5-1716
The Syndics of the Cloth-workers' Guild, 5-1709
text, 5-1709-12
- Beni, Guido, Italian painter (1575-1642)
Aurora, 3-1110
text, 3-1108
- Renoir, Pierre Auguste, French painter (1841-1919)
Portrait of Madame Charpentier and her children, 8-2711
The walk (La promenade), 8-2711
The writing lesson, 8-2712
text, 8-2712
- Repin, Ilya Yefimovich, Russian painter (1841-1918)
Count Tolstoy at work in the fields, 19-6909
The Cossacks write a letter to the Sultan, 16-5697
text, 8-2852
- Revere, Paul, American engraver (1735-1818)
The Boston Massacre, 4-1160
- Reynolds, Sir Joshua, English painter (1723-1792)
self-portrait, 7-2335
scenes from his life, 7-2333
Mrs. Siddons as the Tragic Muse, 6-2113
Portrait of Lady Cockburn and her children, 7-2338
Portrait of Lavinia, Countess Spencer, 6-2117
Portrait of Lord Althorp, 6-2119
Portrait of Lord Heathfield, 6-2120
Portrait of Master Hare, 6-2118
Portrait of Miss Bowles, 1-68; 7-2340
The Age of Innocence, 7-2340
6-2109-11; 7-2332
- Reynolds, Sir Joshua, calls on Chippendale, 19-6769
- Reynolds-Stephens, W., English (American) painter (1862-)
In the arms of Morpheus, 9-3220
- Ribblesdale, Lord, portrait by Sargent, 10-3460
- Ribera, José (Jusepe) de, Spanish painter (1588-1656?)
The adoration of the Child by the shepherds, 4-1494
text, 4-1496
- Richard Cœur de Lion, and the Sultan Saladin, 7-2589
entering Joppa, 7-2585
- Richard II of England giving up his crown, 5-1678
- Richmond, Sir William Blake, English painter (1842-1921)
Venus and Anchises, 9-3232
- Richter, Christian, Swedish painter (1682-1732)
Miniature of Oliver Cromwell, 1-67
- Richter, Gustave, Karl Ludwig, German painter (1823-1884)
Portrait of George Bancroft, 13-4822
- Riley, James Whitcomb, portrait by Sargent, 13-4821
- River in summer, A, by Claude Monet, 7-2477
- River scene, A, water color by Richard Bonington, 6-2232
with cattle, by Cuypp, 5-1591
- Rivière, Briton, English painter (1840-1920)
Apollo, 9-3230
- Road to Mount Valerien, The, by Alfred Sisley, 8-2713
- Roaring forties, The, by Frederick J. Waugh, 10-3459
- Rob Roy and Bailie Nicol Jarvie, by J. Watson Nicol, 7-2629
- Robertson, George E., English painter (1748-1788)
Preaching at the village cross in Tudor times, 3-1123
- Robespierre, portrait, 18-6715
- Robusti, Jacopo, *see* Tintoretto
- Rochambeau, Comte de, portrait, 4-1161
- Rodney, Caesar, arriving at the old State House, Philadelphia, by Horace T. Carpenter, 18-6830
- Roland, Madame, in the conciergerie prison grounds, 6-2129
- Romans in Britain, 4-1321, 1323
- Romeo and Juliet, Scenes from, 16-5759; (and photographs of Jane Cowl in), 3-832, 837
- Romney, George, British painter (1734-1802)
portrait, 7-2327
Portrait of Lady Craven, 6-2115
Portrait of Lady Kerr, 7-2333
Portrait of Mr. and Mrs. Lindow, 6-2114
Portrait of Mrs. Carwardine and child, 7-2337
Portrait of Mrs. Mark Currie, 6-2114
text, 6-2111; 7-2334
- Rosenthal, Toby Edward, American painter (1848-1917)
Morning hymn at Johann Sebastian Bach's, 19-7070
- Rossetti, Dante Gabriel, English painter and poet (1828-1882)
Beata Beatrix, 6-2237
The Annunciation, 6-2240
The Blessed Damosel, 8-2905
text, 6-2236; 8-2904
- Rouget de Lisle singing the Marseillaise, by I. A. A. Fils, 10-3565
- Rousseau, Theodore, French painter (1812-1867)
The pond, 7-2374
text, 7-2370
- Roswe, Samuel W., American artist (1822-1901)
Portrait of Nathaniel Hawthorne, 13-4633
- Royalist, The, by John Pettie, 6-1975
- Rubens, Peter Paul, Flemish painter (1577-1640)
Mother and child, 5-1589
St. Ambrose as bishop of Milan refusing the emperor Theodosius admittance to the cathedral, 13-4861
The garland of fruit, 5-1589
The Holy Family, 5-1584
The painter's sons, 5-1589
text, 5-1589
- Rudolph of Habsburg condemning robber knights, 11-3967
- Ruisdael, Jacob, Dutch painter (1628-1682)
The mill on the dyke, 5-1587
text, 5-1590, 1592
- Ruisdael, Salomon, Dutch painter (c. 1600-1670)
Country scene, 5-1591
text, 5-1591

KEY TO ILLUSTRATIONS (PAINTING)

Ruskin, John, at chapel in Walworth, 9-3315
 copying Giotto's paintings, 9-3311
 Russian peasants hiding from the Empress
 Catherine, 16-5652
 Russians fighting Scythians, 16-5691
Ryder, Albert P., American painter (1847-1917)
 Tollers of the sea, 10-3462
text, 10-3455

S

Sackville children, The, by Hoppner, 6-2118
 Sacred grove, The, mural by Puvis de Chavannes, 7-2475
 St. Ambrose as bishop of Milan refusing Theodosius admittance to the cathedral, by Rubens, 13-4861
 Saint Augustine preaching before Ethelbert and his queen, 2-475
 reading philosophy at the School of Rome, by Benozzo Gozzoli, 2-695
 St. Barbara, by Francia, 4-1457
 St. Basil, by El Greco, 4-1494
 St. Benedict, by Memling, 6-1996
 St. Bernard, Scene from life of, 13-4865
 St. Boniface destroying the sacred oak of Geismar, 13-4861
 St. Bruno and Pope Urban II, by Zurbaran, 4-1494
 St. Catherine, with the Holy Family, by Titian, 3-1111
 St. Catherine of Alexandria, by Pinturicchio, 3-962
 bound to the wheel, by Gaudenzio Ferrari, 6-1995
 Marriage of, by Tintoretto, 3-1112
 St. Catherines, Marriage of the two, by Borgognone, 3-1105
 St. Cecilia, by Gustave Moreau, 7-2478
 by Hugo van der Goes, 4-1223
 by Hubert and Jan van Eyck, 6-1998
 St. Christopher, by Joachim Patinir, 6-1993
 St. Francis, by Taddeo Bartolo, 2-696
 and St. John with the Madonna, fresco by Lorenzetti, 2-691
 Death of, by Giotto, 2-696
 preaching to the birds, by Giotto, 6-1990
 St. Genevieve and a bishop, by Puvis de Chavannes, 7-2478
 St. George, by Mantegna, 3-1112
 and the dragon, drawing by Albrecht Dürer, 4-1348
 and the dragon, by Thomas Maybank, 1-55
 slaying the dragon, 1-357
 with the Holy Family, by Giovanni Bellini, 3-1110
 St. Helena, Vision of, by Paul Veronese, 5-1692
 St. Jerome, The Last Communion of, by Il Domenichino, 13-4865
 St. John the Baptist, by Andrea del Sarto, 3-964
 in the desert, by Raphael, 3-964
 with the Infant Jesus, by Murillo, 4-1494
 St. Louis, *see* Louis IX, of France.
 St. Michael, an old mosaic, 2-577
 St. Nicholas helping the poor, by Lorenzo di Bicci, 6-1990
 Saint Paul, with the Holy Family, by Giovanni Bellini, 3-1110
 St. Stephen in dispute with the Doctors, by Carpaccio, 4-1454
 St. Ursula, Death of, by Memling, 6-1993
 Saladin and Richard Cœur de Lion, Meeting of, 7-2589
 Salamis, Battle of, 3-1077
 Return of the Greek victors after the, by Ferdinand Cormon, 3-1077
 Sally in our Alley, 10-3611
Saloman, Geskel, Swedish painter (1812-1902)
 Gustavus Vasa breaks up a drinking party, 15-5293
 Sand dunes, by Homer D. Martin, 10-3459
Sant, James, English painter (1826-1916)
 Dick Whittington listening to Row Bells, 2-759
 Santa Giustina, Padua, from a water color, by J. R. Cozens, 6-2233
Sargent, John Singer, American painter (1856-1925)
 La Carmencita, 10-3460
 Portrait of Henry G. Marquand, 10-3460
 Portrait of Lord Ribblesdale, 10-3460
 Portrait of James Whitcomb Riley, 13-4821
 Portrait of Mrs. Wertheimer, 10-3460
text, 10-3451-52
 Saskia, by Rembrandt, 5-1715

Savage, Edward, American painter (1761-1817)
 Washington and his family, 3-971
 Savonarola's bonfire of vanities, by F. W. Topham, 13-4867
 Schiller, Johann Christoph Friedrich von, portrait, 17-6414
 Schongauer, Martin, portrait by Hans Burgkmair, 4-1346
 School, A dame's, by Thomas Webster, 14-5251
 School of Athens, The, by Raphael, 2-700
Schrader, Julius, German painter (1815-1900)
 Queen Elizabeth signing the death warrant of Mary Queen of Scots, 5-1824
 Schubert composing The Erl-King, 19-7075
 Schuyler, Philip, portrait, 4-1165
 Scott, Sir Walter, portrait, 7-2489
 scenes from his life, 7-2627
 scenes from his novels, 7-2625, 2628, 2629
Scott, William Bell, English painter (1811-1896)
 Egfrid, king of Northumberland, and Cuthbert, 8-2847
 Seine at Argenteuil, The, by Monet, 7-2477
 Servants of the artist, The, by Hogarth, 9-3072
 Seward, William Henry (in group), by Francis Bicknell Carpenter, 7-2426
 Sforza, Lodovico, portrait by Leonardo da Vinci, 3-825
 Shakespeare, portraits, 1-79; 5-1821
 and Anne Hathaway, 2-726
 before Sir Thomas Lucy, by Thomas Brooks, 2-725
 Globe Theatre, Southwark, where he saw his own plays, 2-720
 scenes from his life, 2-725, 726, 727
 scenes from his plays, 3-832, 835, 837, 839-41, 982, 983, 987, 988; 16-5759, 5761
 with some of the great men of his time, 2-721
 Shaw, George Bernard, by Augustus John, 8-2861
 Sheep, A flock of, by Jean François Millet, 7-2376
Sheldon, Charles, English painter
 Boyhood of Sir Humphry Davy, 3-991
 Mrs. Cromwell reading her husband's letter, 11-3851
 Wellington with his mother, 6-2209
 Wheatstone experimenting with his telegraphic instrument, 17-6239
 Shelley, Percy Bysshe, portrait, 7-2489
 Shepherdess, The, by Jean François Millet, 7-2373
 Shepherd's song, The, by Puvis de Chavannes, 7-2478
 Shepherds of Arcadia, by Poussin, 5-1875
 Sherman, Roger (in group), by John Trumbull, 4-1167
 Sherman's march to the sea, engraving, by F. O. C. Darley, 7-2439
 Siddons, Mrs., portrait by Sir Thomas Lawrence, 7-2339
 as the Tragic Muse, by Sir Joshua Reynolds, 6-2113
 Sidney, Sir Philip, giving a dying soldier his drink of water, 6-2006
 Simon de Montfort riding into Rochester cathedral, by E. F. Skinner, 5-1573
Simon, Lucien, French painter (1861-)
 Regatta day, 8-2857
 The procession, 8-2862
text, 8-2862
 Sinclair, Sir John, portrait by Raeburn, 6-2115
 Singing the old songs, by Jordaens, 5-1591
 Siphtah, king of Egypt, mural portrait from Biban-el-Muluk, 1-293
Sisley, Alfred, French painter (1836-1899)
 The road to Mount Valerien, 8-2713
text, 8-2714
 Sister of the artist, The, by Hogarth, 6-2005
 Sisters, The three, by Palma Vecchio, 3-1105
 Sistine Madonna, The, by Raphael, 3-962
 Sleeping child, by Francine Chardonner, 14-4941
 Smith, Capt. John, portrait, 2-549
 meets an Indian in London, 14-4969
 Smoker, The, by Cézanne, 8-2709
 Snow, by John H. Twachtman, 10-3459
 Snyders, Frans, and his wife, by Van Dyck, 5-1587
 Socrates about to drink the hemlock, by J. L. David, 16-5917
 Song of love, The, by Burne-Jones, 6-2239
 Sons of the artist, The, by Rubens, 5-1589
Sorolla y Bastida, Joaquín, Spanish painter (1863-1933)
 Beaching the boat, 8-2855
text, 8-2855

KEY TO ILLUSTRATIONS (PAINTING)

- Southey, Robert, portrait, 7-2353
 Spanish flower-girl, by Murillo, 9-3070
 Spanish girl, A., by Washington Allston, 9-3331
Speed, Harold, English painter
 A scene from *As You Like It*, 3-839
 Spencer, Lady Georgiana, portrait by Gainsborough, 6-2118
 Spencer, Lavinia, Countess, by Sir Joshua Reynolds, 6-2117
 Spenser, Edmund, reading his poems to Sir Walter Raleigh, 3-1117, 1122
 Spring, by Botticelli, 2-693
 by Mauve, 8-2853
 Spring morning, by Dwight W. Tryon, 10-3458
 Stag fight, The, by Gustave Courbet, 7-2477
 Standish, Miles, combat with Indians, 2-551
 Stanton, Edwin M. (in group), by Francis Bicknell Carpenter, 7-2426
 Steele, Richard, Addison dictating to, 5-1622
 Stephenson, George, working on model of his engine, 5-1613
 Steuben, Baron, portrait, 4-1161
Stewart, Allan, Scottish painter (1865-)
 Sir Galahad, 19-6947
 Still life, by William M. Chase, 9-3325
Stone, Marcus, English painter (1840-1922)
 James Watt watching steam from kettle, 5-1613
 Storm, The, by Diaz, 7-2376
Stothard, Thomas, English painter (1755-1834)
 Canterbury Pilgrims and Chaucer, 1-301
 Stowe, Harriet Beecher, portrait, 13-4730
Strudwick, J. M., English painter (1849-)
 The Three Fates, 9-3229
 Stuart, Charles, *see* Charles I
 Stuart, Charles Edward ("Bonnie Prince Charlie"), by John Pettie, 15-5638
Stuart, Gilbert, American painter (1755-1828)
 Portrait of Dr. Fothergill, 9-3329
 Portrait of Mrs. James Greenleaf, 9-3329
 Portraits of Washington, 9-3327; 11-3946
 text, 9-3327-28
 Stuart, James, Duke of Lennox, by Van Dyck, 5-1584
 Stuyvesant, Peter, portrait, 2-549
Styka, Jan, Polish painter (1858-)
 Tolstoy, 8-2852
 text, 8-2852
 Suggia, Madame, by Augustus John, 8-2861
Sully, Thomas, American painter (1783-1872)
 Portrait of Major Thomas Biddle, 9-3324
 Portrait of Rebecca Gratz, 19-7164
 text, 9-3330
 Summer, by E. A. Hornel, 18-6525
 Sunset, by Daubigny, 7-2375
 Swalmius, Eleazer, Burgomaster, by Rembrandt, 5-1714
 Swift and Stella, by Margaret Dicksee, 5-1619
 Swiss patriots taking oath to preserve the freedom of their nation, 16-6005
 Syndics of the Cloth-workers' Guild, The, by Rembrandt, 5-1709
- T**
- Taking of the Smala, The, by Horace Vernet, 6-2079
 Tallis, Thomas, listening to William Byrd playing on his virginal, 19-6915
 Tarleton, Banastre, British cavalry leader, portrait, 4-1161
 Tecumseh and General Harrison, 6-1907
 Tell, William, and his son, 19-7218
 compelled to shoot an apple from his son's head, 16-6005
Teniers, David, the Younger, Flemish painter (1610-1690)
 Players at tric-trac, 5-1593
 The Prodigal Son, 5-1591
 text, 5-1586, 1588
 Tennyson, Alfred, Lord, portrait, 10-3471
Terborch, Gerard, Dutch painter (1617-1681)
 A lady reading a letter, 5-1587
 text, 5-1584
 Thackeray in his study, 8-2731
 Thanksgiving Day, 1621, at Plymouth, from an old print, 6-2089
Thayer, Abbott, American painter (1849-1921)
 A young woman, 10-3446
 Caritas, 10-3457
 text, 10-3453-54
 Theodora, Empress of Byzantium, 13-4799
 Theotocopuli, Domenico, *see* Greco, El
- Thomas à Becket arguing with knights, 5-1569
 Murder of, 5-1569
Thompson, A. Wordsworth, American artist (1840-1896)
 Bruton Church, Williamsburg, Va., 5-1701
 Thomson, James, portrait, 6-2029
 Three Fates, The, by Michelangelo, 3-826
 spinning the thread of life, by J. M. Strudwick, 9-3229
 Thunder cloud, The, by F. M. Knowles, 10-3710
Tintoretto (Jacopo Robusti), Italian painter (1518-1594)
 Portrait of Admiral Veniero, 4-1454
 The marriage of St. Catherine, 3-1112
Titian (Tiziano Vecelli), Italian painter (1477-1576)
 Ariosto, 3-1105
 Flora, 3-1111
 Portrait of Alfonso d'Este, 3-1109
 Portrait of the Empress Isabella, 3-1110
 The Holy Family, 3-1111
 text, 3-1106-07; 4-1462, 1464
Tobin, George Timothy, American artist (1864-)
 Portrait of Ralph Waldo Emerson, 13-4630
 Toilers of the sea, by Albert P. Ryder, 10-3462
 Toll-gate, The, by Cornelius Kreighoff, 10-3699
 Tolstoy, by Jan Styka, 8-2852
 at home, 19-6904
 at work in the fields, by Ilya Y. Repin, 19-6909
 with his sister, 19-6904
Topham, Francis William, English painter (1808-1877)
 Hannah delivers Samuel to Eli, 19-7154
 Savonarola's bonfire of vanities, 13-4867
 Toronto more than 100 years ago, from an old print, 3-943
 Transfiguration, The, by Giovanni Bellini, 3-1112
 Tristram, Sir, Admission of, to the fellowship of the Knights of the Round Table, by William Dyce, 19-6946
Troyon, Constant, French painter (1810-1865)
 Oxen going out to plow, 7-2376
 text, 7-2370
Trumbull, John, American painter (1756-1843)
 Portrait of Alexander Hamilton, 9-3328
 The Declaration of Independence before Congress, 4-1167
 text, 5-1534; 9-3328
Tryon, Dwight W., American painter (1849-1925)
 Spring morning, 10-3458
 text, 10-3449
Turner, Charles, English artist (1773-1857)
 Portrait of J. M. W. Turner, 7-2336
Turner, Joseph Mallard William, British painter (1775-1851)
 portrait, 7-2327
 portrait by Charles Turner, 7-2336
 Chichester Canal, 6-2229
 Hindu devotions, 6-2233
 The Fighting Téméraire towed to her last berth, 6-2233
 Venice, 9-3069
 text, 6-2234-35; 7-2335-36
Twachtman, John H., American painter (1853-1921)
 Snow, 10-3459
 text, 10-3456
 Twelfth Night, Scene from, by Daniel Maclise, 3-987
Twopeny, William, English draughtsman (1797-1873)
 Architectural drawings, 2-444-45
 text, 2-443-45
 Tyndale, William, translating the New Testament, 1-303
- U**
- Unknown man, An, portrait by El Greco, 9-3073
 Up the Hudson, by George Bellows, 10-3463
 Urban II, Pope, preaching the first crusade, 7-2584
- V**
- Van Collier, Suzanna, with her little daughter, portrait by Rembrandt, 5-1715
Van der Goes, Hugo, *see* Goes, Hugo van der
Van der Helst, Bartholomeus, *see* Helst, Bartholomeus van der
Vanderlyn, John, American painter (1775-1852)
 The landing of Columbus, 1-82
Van der Weyden, Roger. *see* Weyden, Roger van der

KEY TO ILLUSTRATIONS (PAINTING)

- Van Dyck, Sir Anthony**, Flemish painter (1599-1641)
 Andrea Brignole-Sale on horseback, 5-1587
 Portrait of Charles Stuart (Charles I, King of England), 11-3848
 Portrait of James Stuart, Duke of Lennox, 5-1584
 Portrait of Frans Snyder and his wife, 5-1587
 Portrait of the children of Charles I, 5-1585
 Portrait of the Earl of Arundel and his grandson, 5-1584
text, 5-1586; 6-1974, 1976, 2000
- Van Eyck, Hubert and Jan**, *see* **Eyck**
- Varley, Frederick**, Canadian painter
 John, portrait of a boy, 10-3709
text, 10-3704
- Vatican**, The, ceiling in the Sistine chapel, 3-822-23, 826-27
 Lunette in, by Raphael, 3-957
- Vecchio, Palma**, Italian painter (1480-1528)
 The meeting of Jacob and Rachel, 3-1111
 The three sisters, 3-1105
text, 3-1106
- Vedder, Elihu**, American painter (1836-1923)
 The lost mind, 10-3462
text, 10-3459
- Vega, Lope de**, portrait, 19-7125
- Velasquez, Diego Roderiquez de Silva**, Spanish painter (1599-1660)
 Christ and the pilgrims of Emmaus, 4-1497
 Portrait of a lady, 4-1504
 Portrait of Alessandro del Borro, 4-1502
 Portrait of Ferdinand of Austria, 1-71
 Portrait of Francesco d'Este, 4-1504
 Portrait of Menippus, 4-1502
 Portrait of Philip IV of Spain, 4-1501, 1503
 Portrait of Pope Innocent X, 4-1504
 Portrait of Prince Balthasar Carlos, 4-1502, 1503
 Portrait of Princess Margaret, 4-1503
 Portrait of Queen Mariana of Austria, 4-1504
 Portrait of Queen Mary of Hungary, 4-1503
 Portrait of the Duke of Olivares, 4-1502
 Portrait of the Infante Philipp Prosper, 4-1494
 The forge of Vulcan, 4-1495
 The old cook, 9-3072
text, 4-1496, 1498, 1500; 7-2480
- Venice**, by Turner, 9-3069
- Veniero**, Admiral, portrait by Tintoretto, 4-1454
- Venus**, Mirror of, The, by Burne-Jones, 9-3231
- Venus and Anchises**, by Sir William B. Richmond, 9-3232
- Vermeer, Jan (Johannes)**, Dutch painter (1632-1675)
 The cook, 9-3074
 The pearl necklace, 9-3075
 Young woman with a water jug, 5-1593
text, 5-1594
- Vernet, Claude Joseph**, French painter (1714-1789)
 Mediterranean scene, 5-1875
text, 5-1882
- Vernet, Horace**, French painter (1789-1863)
 An Eastern trader, 6-2079
 The battle of Bouvines, 6-2077
 The taking of the Smala, 6-2079
text, 6-2082
- Veronese, Paolo (Paolo Cagliari)**, Italian painter (1528-1588)
 self-portraits, 4-1463
 Industry, 4-1454
 Magdalen, 3-1112
 The Madonna of the Cuccina family, 3-1112
 The marriage at Cana, 3-1110; 4-1454
text, 3-1107; 4-1463-64
- Vespucci, Amerigo**, portrait, 1-88
- Vicar of Wakefield**, Scene from The, 6-2255
- Victor Emmanuel II and Garibaldi**, Meeting of, 13-4589
- Victoria** receiving news of her accession to the English throne, by H. T. Wells, 7-2292
- Vienna**, The Congress of, by Isabey, 11-3959
- Viking boats**, 1-240, 243
- Village choir**, The, by Thomas Webster, 18-6697
- Village school**, A, by Sir David Wilkie, 14-5251
- Vinci, Leonardo da**, Italian painter and sculptor (1452-1519)
 Mary, Saint Anne, and the Infant Jesus, 3-825
 Mona Lisa, 3-829
 Portrait of Beatrice d'Este, 3-825
 Portrait of Lodovico Sforza, 3-825
 The Last Supper, 3-830
 The Madonna of the Rocks, 3-825
text, 3-824, 828, 830, 957; 13-4785
- Virgil and Horace at the house of Mæcenat**, 16-5906
- Virgin, The**, by Lorenzo di Credi, 2-696
 from a 12th century psalter, 6-2001
 4th century mosaic from Ravenna, 1-70
 7th century mosaic, 2-579
See also Madonna
- Vision of Joan of Arc**, The, by G. W. Joy, 16-5817
 by Bastien-Lepage, 7-2479
- Vision of Saint Helena**, by Paul Veronese, 5-1692
- Vision of the Holy Grail**, by E. A. Abbey, 19-6948
- Visitation**, The, by Ghirlandaio, 2-690
- Voltaire, François Marie**, portrait, 18-6716

W

- Wagner, Carl**, German painter (1796-1867)
 Bismarck dictating the terms of the Peace of Versailles, 11-3969
- Wagner, Richard**, caricature, 19-7151
- Walk, The (La promenade)**, by Renoir, 8-2711
- Walker, Frederick**, English painter (1840-1875)
 A rainy day, 8-2921
- Walker, Horatio**, Canadian painter (1858-)
 Oxen drinking, 10-3705
text, 10-3702
- Wallis, Dr. John**, portrait by Sir Godfrey Kneller, 6-2002
- Ward, E. M.**, English painter (1816-1879)
 Louis XVI and royal family in prison, 6-2133
- Wars of the Roses**, The, their beginning in the Temple Gardens, 5-1681
- Washington, George**, portraits by Gilbert Stuart, 9-3327; 11-3946
 and his family, by Edward Savage, 3-971
 at Valley Forge, 4-1169
 crossing the Delaware, by E. Leutze, 4-1169
 his inauguration and first Cabinet, 5-1699
 on the Braddock Expedition, engraving, 3-781
 waving farewell to his generals, 4-1173
- Washington, Martha**, portrait, 2-391
 holding a reception, 2-390
- Water gate**, The, by Daubigny, 9-3071
- Waterhouse, John William**, English painter (1817-1917)
 Psyche's garden, 9-3229
- Waterloo**, The battle of, 6-2096, 2211
- Watson, Homer**, Canadian painter (1856-)
 Nut-gatherers in the forest, 10-3701
text, 10-3701-02
- Watson, Spencer**, English painter (1869-)
 Portrait of Isabel Pinkney, 8-2861
- Watt, James**, watching steam from kettle, by Marcus Stone, 5-1613
- Watteau, Antoine**, French painter (1684-1721)
 A girl dancing, 5-1880
 The embarkation for Cythera, 5-1883
text, 5-1881
- Watts, George Frederick**, English painter (1817-1904)
 Portrait of Cardinal Manning, 6-2237
 Sir Galahad, 19-6947, 6951
text, 6-2236; 13-4854
- Waugh, Frederick J.**, American painter (1861-)
 The roaring forties, 10-3459
text, 10-3456
- Wayne, Anthony**, portrait, 4-1165
- Webster, Daniel**, portrait, 10-3493
- Webster, Thomas**, English painter (1800-1886)
 A dame's school, 14-5251
 An old school, 16-5683
 The village choir, 18-6697
- Welles, Gideon (in group)**, by Francis Bicknell Carpenter, 7-2426
- Wellington**, portrait, 6-2199
 and Blücher at Waterloo, 6-2198
 and his mother, by Charles Sheldon, 6-2209
 in the Peninsular War, by Hillingford, 14-5043
 on his march to Waterloo, by Ernest Crofts, 6-2211
 on the field of Waterloo, 6-2205
 surveying the field of Waterloo, 6-2207
- Wells, Henry T.**, English painter (1828-1903)
 Victoria receiving news of her accession to the English throne, 7-2292
- Wenceslas**, King, and his page, by Sheridan Knowles, 3-842
- Wentworth, Lady**, portrait by Copley, 9-3324
- Wertheimer, Mrs.**, portrait by Sargent, 10-3460
- West, Benjamin**, American painter (1738-1820)
 Hagar and Ishmael, 9-3331
 Portrait of Charles Willson Peale, 9-3329
text, 9-3325-26

KEY TO ILLUSTRATIONS (PAINTING)

Western sunlight, by C. W. Jefferys, 10-3706
Weyden, Roger van der, Flemish painter (c. 1400-1464)
 The Annunciation, 4-1220
 The Virgin and Child, 4-1223
 text, 4-1225
 Wheatstone, Sir Charles, experimenting in his laboratory, by Charles Sheldon, 17-6239
Wheelwright, Rowland, English painter (1870-)
 Enid and Geraint, 19-6945
 "When did you last see your father?", by W. F. Yeames, 13-4563
Whistler, James McNeill, American painter (1834-1903)
 Portrait of the artist's mother, 10-3446
 The White Girl, 10-3446
 text, 10-3449-50
White, John, English colonist
 Drawings of Indian life, 17-6334-36
 text, 17-6333-37
 White Girl, The, by Whistler, 10-3446
 Whitman, Walt, portrait by John W. Alexander, 13-4729
 Whittier, John Greenleaf, portrait, 13-4724
 Whittington, Dick, listening to Bow Bells, by James Sant, 2-759
Wighill, Edward
 The Goths entering Rome, 4-1195
 Wild cattle, by Landseer, 4-1258
Wilkie, Sir David, Scottish painter (1785-1841)
 A village school, 14-5251
 William of Orange as a boy, by Rembrandt, 5-1714
 William the Conqueror and his men led by Taillefer the Minstrel, 4-1439
 Coronation of, 4-1438
 Death of, 4-1438
 Scenes from his conquest, 4-1435
 William I proclaimed German Emperor at Versailles, by A. von Werner, 12-1169
 Williams, Lady, and child, by Ralph Earle, 3-969
 Winifred Dysart, by George Fuller, 10-3461
 Winter, by Alexander Young Jackson, 10-3707
 Winter's Tale, Scene from The, 3-982
 Winthrop, Governor John, portrait, 12-4445
 Wise Men, Two of the three, by Benozzo Gozzoli, 2-696; 5-1745
 Woman, A, portrait by Frans Hals, 5-1590
 portrait by van der Helst, 7-2719
 and child, by Franz Hals, 1-69

Woman's head, study by Besnard, 8-2709
 Wood-gatherers, The, by George Inness, 10-3463
 Wordsworth, Dorothy, portrait, 7-2353
 Wordsworth, William, and children, 7-2355
 Wotan's farewell to Brunnhilde, drawing by P. W. Furstenberg, 19-7149
 Wreck, The, by Winslow Homer, 10-3459
 of the Spanish Armada, by Albert Goodwin, 5-1819
 Writing lesson, The, by Renoir, 8-2712
Wyant, Alexander H., American painter (1836-1892)
 Looking toward the sea, 10-3458
 text, 10-3448
 Wyatt, Margaret, Lady Lee, by Holbein, 4-1349
Wyllie, William L., English painter (1851-)
 The Pool of London, 15-5357

X

Xerxes I crossing the Hellespont, 3-917

Y

Yeames, Wm. F., English painter (1835-1918)
 Queen Elizabeth receiving the French ambassador, 5-1815
 "When did you last see your father?", 13-4563
 Young girl peeling apples, by Nicolaes Maes, 5-1593
 Young man, A, portrait by Albrecht Dürer, 4-1347
 portrait by Holbein, 4-1351
 Young mother, The, by Gerard Douw, 5-1591
 Young rogue, The, by Greuze, 5-1878
 Young woman, by Abbott Thayer, 10-3446
 with a water jug, by Vermeer, 5-1593

Z

Zorn, Anders, Scandinavian painter (1860-1920)
 A fisherman of St. Ives, 8-2864
 text, 8-2852
Zuccherro, Federico, Italian painter (1542-1609)
 Portrait of Queen Elizabeth, 5-1821
Zuloaga, Ignacio, Spanish painter (1870-)
 My cousin Candida, 8-2854
 text, 8-2854
Zurbaran, Francisco, Spanish painter (1598-1662)
 The miracle of St. Hugo, 4-1494
 St. Bruno and Pope Urban II, 4-1494
 text, 4-1496; 9-3070

PAINTINGS CLASSIFIED BY SUBJECT

Animal

Apes, by J. C. Dollman, 16-6032
 Beasts charmed by Apollo's music, by Briton Riviere, 9-3230
 Bull fight, by Goya, 4-1499
 Bull-grappling (fresco from Knossos, Crete), 2-453
 Cattle, in river scene, by Cuyp, 5-1592
 of ancient Egypt (mural), 3-821
 Wild, by Landseer, 4-1258
 Cave-men's drawings, 1-189-91, 193
 Chariot race in the Circus Maximus, by E. Forti, 10-3744
 Cows in a meadow, by Mauve, 8-2853
 End of the trail, The, by Maud Earl, 2-711
 Geese (Egyptian mural), 1-289
 Griffin (fresco from Knossos, Crete), 2-452
 Horse Fair, The, by Rosa Bonheur, 7-2369
 Horses in the harvest field, by Maud Hogarth Clay, 6-2011
 Legendary beasts, 1-253-59
 Mares and their foals, by A. J. Munnings, 8-2863
 Newfoundland dog, by Landseer, 2-710
 Oxen drinking, by Horatio Walker, 10-3705
 going out to plow, by Troyon, 7-2376
 Parrots, The meeting of, by Henry Stacy Marks, 10-3619
 Sheep, A flock of, on a footpath, by Jean François Millet, 7-2376
 and shepherdess, by Jean François Millet, 7-2373
 in Spring, by Mauve, 8-2853
 Stag fight, The, by Gustave Courbet, 7-2477
 Wild cattle, by Landseer, 4-1258

Figure, including Genre (see also Historical)

Academia, by Blashfield, 10-3462
 Addison, Joseph, dictating to Richard Steele, 5-1622
 Age of Innocence, The, by Sir Joshua Reynolds, 7-2340
 Aldobrandini Marriage, The (Greek mural), 2-447
 Angelus, The, by Jean François Millet, 1-71
 Apollo and Daphne, by Henrietta Rae, 9-3231
 Apollo charming the animals, by Briton Riviere, 9-3230
 Apotheosis of Homer, by Ingres, 16-5749
 Assyrian mural, 1-296
 As You Like It, Scenes from, by Harold Speed and Sir J. E. Millais, 3-839
 At the Golden Gate, by Val Prinsep, 6-2240
 Aurora (mural), by Guido Reni, 3-1110
 Back from the Southern Seas, by Edgar Bundy, 14-5026
 Bailiff's daughter, The, by John Hatherell, 11-4031
 Balcony, The, by Edouard Manet, 7-2474
 Beata Beatrix, by Dante Gabriel Rossetti, 6-2237
 Bede, The Venerable, translating the Gospel, by J. Doyle Penrose, 1-122
 writing (12th century manuscript), 2-476
 Beggar, The old, by Bastien-Lepage, 7-2479
 Beguiling of Merlin, The, by Burne-Jones, 19-6917
 Belle Jardinière, La, by Raphael, 3-963
 Black and green, by John W. Alexander, 10-3461
 Blessed Bread, by Dagnan-Bouveret, 7-2477

KEY TO ILLUSTRATIONS (PAINTING)

Figure (continued)

Blessed Damsel, The, by Dante Gabriel Rossetti, 8-2905
 Blue Boy, The, by Gainsborough, 7-2340
 Book of the Dead, Egyptian, 1-294; 15-5459
 Books of the Middle Ages, Illuminations from, 2-477-80
 Boy with a kid, A, by Sir Thomas Lawrence, 6-2119
 with a sword, by Edouard Manet, 7-2479
 Bridal gifts (Greek decoration), 2-454
 Broken pitcher, The, by Greuze, 5-1877
 Bruce, Robert, capture of his wife and child, by William Eole, 12-4207
 his last act, by William Eole, 12-4207
 Bull fight, by Goya, 4-1499
 Bull-grappling (fresco from Knossos), 2-453
 Burning weeds, by Jean François Millet, 7-2371
 Burns, Robert, and Highland Mary, by Thomas Faed, 6-2137
 Caritas, by Abbott Thayer, 10-3457
 Ceremony of the kiss, The, by Makovski, 16-5697
 Chess-players, by Thomas Eakins, 10-3464
 Children of the sea, by Josef Israels, 8-2864
 playing, by Pieter Brueghel, 4-1226
 with garland of fruit, by Rubens, 5-1589
 Circe, by Burne-Jones, 9-3232
 Cook, The, by Vermeer, 9-3074
 Cophtua, King, and the beggar maid, by Burne-Jones, 2-734
 Cossacks, The, write a letter to the Sultan, by Ilya Repin, 16-5697
 Dance of the Seasons, by Poussin, 11-4131
 Dancer, A, by Degas, 8-2711
 Desdemona listening to Othello, 3-840
 Dysart, Winifred, by George Fuller, 10-3461
 Eastern trader, An, by Horace Vernet, 6-2079
 Egyptian wall decorations, 3-820; 10-3547
 Elaine, the Lily Maid of Astolat, by Mouat Loudan, 16-5822
 Enid and Geraint, by Rowland Wheelwright, 19-6945
 Evening meal, The, by Max Bohm, 10-3464
 Faerie Queene, An incident from Spenser's, 3-1121
 Falstaff, Sir John, Shakespearean character, 3-841
 Family life in old France, by Greuze, 5-1879
 Festive board, The, by Jan Brueghel, 7-2567
 Fidelity, by Greuze, 5-1879
 Fire dies down in the cottage, The, by Walter Langley, 11-3839
 Firing party, The, by Edouard Manet, 7-2477
 Fisherman of St. Ives, A, by Anders Zorn, 8-2864
 Flight of Night, The, by William Morris Hunt, 10-3462
 Flodden Field, After (mural), by William Eole, 12-4211
 Before, by J. Faed, 12-4211
 Flora, by Titian, 3-1111
 Flower lady, The, by Rembrandt, 5-1716
 Forge of Vulcan, The, by Velasquez, 4-1495
 Frescoes from Boscoreale, 2-453
 Funeral ceremony (Cretan sarcophagus decoration), 2-454
 Gainsborough and Reynolds, Reconciliation of, by C. H. Lucy, 7-2333
 Galahad, Sir, by Allan Stewart, 19-6947
 by G. F. Watts, 19-6951
 Girl at a window, by Rembrandt, 5-1714
 dancing, by Watteau, 5-1880
 in white, Ernesta, by Cecilia Beaux, 10-3461
 Godiva, Lady, pleading for her people, by E. Blair Leighton, 17-6295
 Grace before meat, by Chardin, 5-1875
 Guinevere, Queen, in the nunnery garden, by Mary F. Hanbael, 19-6948
 Hagar and Ishmael, by Benjamin West, 9-3331
 Hamlet, Scenes from Shakespeare's, 3-840; 16-5761
 Handel, as a boy, playing the clavichord at night, by Margaret I. Dicksee, 19-6913
 Hannah delivers the child Samuel to Eli, by F. W. W. Topham, 19-7154
 Helena and Hermia in the garden, by Sir Edward Poynter, 3-835
 Helping mother, by Josef Israels, 8-2851
 Henry IV, Scene from Shakespeare's, 3-841
 Hireling shepherd, The, by Holman Hunt, 6-2238

Figure (continued)

History and Philosophy (wall panels), by Puvis de Chavannes, 7-2481
 Holy Grail, Vision of the (mural), by E. A. Abbey, 19-6948
 Homer, Apotheosis of, by Ingres, 16-5749
 Iduna giving the golden apples to the gods, by J. Doyle Penrose, 15-5329
 In the garden, by George de Forest Brush, 10-3464
 Indian encampment, by Ralph A. Blakelock, 10-3462
 Industry, by Paul Veronese, 4-1454
 Innocence, by Greuze, 5-1880
 Janizaries on the charge, by Delacroix, 6-2082
 Joan of Arc, by Bastien-Lepage, 7-2479
 at Rheims coronation, by Jules Lenepveu, 16-5816
 at the stake, by Jules Lenepveu, 16-5816
 welcomed by the populace, by Jules Lenepveu, 16-5816
 Johnson, Dr. Samuel, and Oliver Goldsmith, 5-1869; 6-2258
 visiting Sir Joshua Reynolds, by Francis Barraud, 7-2333
 Knight at the ford, The, by J. E. Millais, 6-2239
 Vigil of a, before the altar, by John Pettie, 14-5197
 Knights of King Arthur, by Burne-Jones, 19-6946
 Lady Godiva pleading for her people, by E. Blair Leighton, 17-6295
 Lady playing on a clavichord, by J. M. Mole-naer, 19-6901
 reading a letter, by Gerard Terborch, 5-1587
 Lancelot and Elaine, by Sidney Paget, 19-6946
 Last days in the old home, by Robert Martineau, 8-2681
 Lawrence, Sir Thomas, as a boy, by Margaret Dicksee, 7-2329
 Lear, King, renouncing his daughter Cordelia, by Ford Madox Brown, 3-987
 Lesson in anatomy, The, by Rembrandt, 5-1716
 Listeners in the wood, The, by E. A. Hornel, 9-3309
 Lorenzo and Isabella, by Sir J. E. Millais, 6-2238
 Lorenzo de Medici, as one of the Magi, by Benozzo Gozzoli, 5-1745
 Lost mind, The, by Elihu Vedder, 10-3462
 Lute player, The, by Caravaggio, 9-3070
 Measure for Measure, Scene from, 3-982
 Meeting of Jacob and Rachel, The, by Palma Vecchio, 3-1111
 Merchant of Venice, A scene from The, by Sir John Gilbert, 3-983
 Merry Wives of Windsor, A scene from The, 3-841
 Milton and his first love, by G. H. Boughton, 4-1234
 Morning hymn at Johann Sebastian Bach's, by T. E. Rosenthal, 19-7070
 Morpheus, In the arms of, by W. Reynolds-Stephens, 9-3230
 Morris dance, A, by T. C. Gotch, 16-5739
 Mother, Helping, by Josef Israels, 8-2851
 The young, by Gerard Douw, 5-1591
 and child, by Xavier Bricard, 8-2862
 by Ralph Earle, 3-969
 by Virgée Le Brun, 5-1880
 by Gari Melchers, 10-3464
 by Rubens, 5-1589
 and her children, A, by Jean François Millet, 7-2373
 feeding her child, by Mary Cassatt, 10-3464
 Mozart listening to his Requiem, by Kaubach, 19-6919
 playing before members of the court of Vienna, by E. Hamman, 19-7074
 with his father and sister, 19-6919
 Mural paintings in the catacombs, 2-577
 Murat at the battle of Aboukir (detail), by Gros, 6-2082
 Muse of Painting, The, by LaFarge, 10-3462
 Needle woman, The, by Josef Israels, 8-2864
 New bonnet, The, by Eastman Johnson, 10-3464
 Noonday rest, by John Linnell, 12-4503
 Nuremberg town-band, by Dürer, 19-7071
 Old Mortality, Scene from, by Orchardson, 7-2625
 Old school, An, by Thomas Webster, 16-5683
 Ophelia in her madness, 3-840

KEY TO ILLUSTRATIONS (PAINTING)

Figure (continued)

Parasol, The, by Goya, 4-1499
 Pastoral idyl, A, by François Boucher, 5-1875
 Paying the reapers, by Lhermitte, 9-3076
 Pearl necklace, The, by Vermeer, 9-3075
 Peasants at supper, by the brothers Le Nain, 5-1878
 Peveril of the Peak, Scene from, by Orchardson, 7-2628
 Philip the Metropolitan refuses his blessing to Ivan the Terrible, 16-5693
 Philosophy and History (wall panels), by Puvis de Chavannes, 7-2481
 Pied Piper of Hamelin, The, by A. A. Dixon, 1-225, 226
 Piper among the hills, A, by Le Nain, 5-1875
 Players at tric-trac, by Teniers, 5-1593
 Players on primitive musical instruments, 19-6899-6900
 Pounds, John, of Portsmouth, and his pupils, 17-6140
 Preaching at the village cross, by Robertson, 3-1123
 Princes in the Tower, The, by Sir J. E. Millais, 1-149
 Procession, The, by Lucien Simon, 8-2862
 Prodigal Son, The, by Teniers, 5-1591
 Psyche, by Alfred de Curzon, 9-3229
 Psyche's garden, by J. W. Waterhouse, 9-3229
 Puritan, The, by John Pettie, 6-1975
 Quartette, The, by Albert Moore, 6-2240
 Rainy day in camp, A, by Winslow Homer, 7-2443
 Raleigh, Sir Walter, Boyhood of, by Sir J. E. Millais, 5-1812
 Spenser reading poems to, 3-1117, 1122
 Rob Roy and Bailie Nicol Jarvie, by J. Watson Nicol, 7-2629
 Romeo and Juliet, Scene from, 16-5759
 Rouget de Lisle singing the Marseillaise, by I. A. A. Pils, 10-3565
 Royalist, The, by John Pettie, 6-1975
 Ruskin, John, at chapel in Walworth, 9-3315
 copying Giotto's paintings, 9-3311
 Sacred grove, The (mural), by Puvis de Chavannes, 7-2475
 School, A dame's, by Thomas Webster, 14-5251
 School of Athens, The, by Raphael, 2-700
 Shakespeare and Anne Hathaway, 2-726
 before Sir Thomas Lucy, by Thomas Brooks, 2-725
 with some great men of his time, 2-721
 Shepherdess, The, by Jean François Millet, 7-2373
 Shepherd's song, The, by Puvis de Chavannes, 7-2478
 Shepherds of Arcadia, by Poussin, 5-1875
 Singing the old songs, by Jordaens, 5-1591
 Sisters, The three, by Palma Vecchio, 3-1105
 Sleeping child, by Francine Charderon, 14-4941
 Smoker, The, by Cézanne, 8-2709
 Song of love, The, by Burne-Jones, 6-2239
 Spanish flower girl, by Murillo, 9-3070
 girl, A, by Washington Allston, 9-3331
 Spenser, Edmund, reading his poems to Sir Walter Raleigh, 3-1117, 1122
 Spring, by Botticelli, 2-693
 Steele, Richard, Addison dictating to, 5-1622
 Summer, by E. A. Hornel, 18-6525
 Swift and Stella, by Margaret Dicksee, 5-1619
 Syndics of the Cloth-workers' Guild, The, by Rembrandt, 5-1709
 Three Fates, The, by Michelangelo, 3-826
 spinning, by J. M. Strudwick, 9-3229
 Tolstoy, by Jan Styka, 8-2852
 at home, 19-6904
 at work in the fields, by Ilya Repin, 19-6909
 with his sister, 19-6904
 Tristram, Sir, admitted as a Knight of the Round Table (mural), by W. Dyce, 19-6946
 Twelfth Night, A scene from, by Daniel Maclise, 3-987
 Venus, The mirror of, by Burne-Jones, 9-3231
 and Anchises, by Sir William B. Richmond, 9-3232
 Village choir, The, by Thomas Webster, 18-6697
 school, A, by Sir David Wilkie, 14-5251
 Virgil and Horace at the house of Mæneas, 16-5906
 Vision of Joan of Arc, by Bastien-Lepage, 7-2479; by G. W. Joy, 16-5817
 of St. Helena, by Paul Veronese, 5-1692
 of the Holy Grail, by E. A. Abbey, 19-6948

Figure (continued)

Walk, The (La promenade), by Renoir, 8-2711
 Watt, James, watching steam from kettle, by Marcus Stone, 5-1613
 Wenceslas, King, and his page, by Sheridan Knowles, 3-842
 "When did you last see your father?", by W. F. Yeames, 13-4563
 White Girl, The, by Whistler, 10-3446
 Winifred Dysart, by George Fuller, 10-3461
 Winter's Tale, The, Scene from, 3-982
 Wise Men, Two of the three (portraits of the Medici), by Benozzo Gozzoli, 2-696; 5-1745
 Wood-gatherers, The, by George Inness, 10-3463
 Writing lesson, The, by Renoir, 8-2712
 Young girl peeling apples, by Nicolaes Maes, 5-1593
 mother, The, by Gerard Douw, 5-1591
 rogue, The, by Greuze, 5-1878
 woman with a water jug, by Vermeer, 5-1593

Historical

Armada, The Spanish, Drake receives news of, by Seymour Lucas, 5-1819
 Wreck of, by Albert Goodwin, 5-1819
 Arthur, King, at Avalon, by Burne-Jones, 19-6948
 The knights of, by Burne-Jones, 19-6946
 The passing of, by James Archer, 19-6947
 Augustina, the Maid of Saragossa, 14-5119
 Barlow, General, receiving surrender of prisoners, by Winslow Homer, 7-2443
 Battle of Bouvines, The, by Horace Vernet, 6-2077
 Bismarck, dictating the terms of the Peace of Versailles, by Carl Wagner, 11-3969
 Boabdil surrendering the keys of Granada, by Francisco Pradilla, 14-5043
 "Bonnie Prince Charlie," by John Pettie, 15-5638
 Brazil, "The Cry of Ypiranga," 19-7043
 Britons trading with Phenicians, by Lord Leighton, 4-1431
 Bruce, Robert, capture of his wife and child, by William Eole, 12-4207
 his last act, by William Eole, 12-4207
 Bruton Church, Williamsburg, Va., by A. W. Thompson, 5-1701
 Cabot, John, reaches North America, 1-249
 and Sebastian, leaving Bristol, by Ernest Board, 1-254
 Caxton, William, printing the first book in England, 9-3387
 setting up his press at Westminster, 9-3387
 showing a book to the Abbot, 1-302
 Cervantes' last hours, by E. Oliva, 19-7128
 Charlemagne and his pupils, 10-3433
 Charles I, portrait by Van Dyck, 11-3848
 about to die, 6-1975
 scenes from his life, 6-1972, 1975
 The children of, by Van Dyck, 5-1585
 The funeral of, by Ernest Crofts, 6-1975
 Christian missionaries in Britain, by J. R. Herbert, 4-1431
 Cicero delivering an oration against Catiline, by Cesare Maccari, 4-1367
 Clovis I, Baptism of, 10-3431
 Clovis II, receiving homage, 10-3431
 Columba sighting the shores of Scotland, by Georges Girardot, 8-2842
 Columbus and Queen Isabella, 1-88
 before the King and Queen of Spain, 1-87
 landing in the New World, 1-82, 240
 Constantine leading his troops at the battle of Milvian Bridge, 5-1858
 Corday, Charlotte, on the way to execution, 6-2129
 Cornelia showing her "jewels," 11-3811
 Cossacks, The, write a letter to the Sultan, by Ilya Repin, 16-5697
 Covenanters, Religious service of, 7-2625
 Cowpens, Battle of the, 4-1171
 Cromwell, Oliver, riding through York, by Ernest Crofts, 11-3814
 visiting Milton, by David Neal, 4-1241
 Cromwell, Mrs., reading her husband's letter, by Charles Sheldon, 11-3851
 David at the cave of Adullam, by Claude Lorrain, 5-1883
 playing the harp (from an old Saxon psalter), 6-2001
 Saul and Jonathan, 19-7003

KEY TO ILLUSTRATIONS (PAINTING)

Historical (continued)

David I of Scotland, The good deeds of, by William Eole, 12-4206
 Declaration of Independence, The, before Congress, by John Trumbull, 4-1167
 Dentatus, Curius, refusing a bribe, 3-889
 "Destruction" (from series, The Course of Empire), by Thomas Cole, 9-3331
 Disraeli and Gladstone, 7-2295
 Drake, Sir Francis, portrait, 5-1821
 at Panama, 14-4963
 first sees the Pacific Ocean, 14-4963
 receives news of Spanish Armada, while at bowls, by Seymour Lucas, 5-1819
 Dunstan reproving King Edwy, by W. J. Morgan, 8-2848
 Edward V and his brother in the Tower, by Sir J. E. Millais, 1-149
 Edward VI, portrait by Holbein, 5-1823
 Egfrid, King of Northumberland, and Cuthbert, by W. Bell Scott, 8-2847
 Elizabeth, Queen, portrait by Federigo Zuccherro, 5-1821
 listening to a reading by Shakespeare, by Eduard Ender, 2-725
 receiving the French ambassador, by W. F. Yeames, 5-1815
 shown an experiment by William Gilbert, 4-1254
 signing the death warrant of Mary Queen of Scots, by Julius Schrader, 5-1824
 The last hours of, by Delaroche, 5-1824
 watching a revelry, 5-1824
 Erasmus among his books, 14-5249
 teaching the young Emperor Charles V, 14-5249
 with scholars at Basle, by Felix Cogan, 14-5249
 Evelyn, John, discovers young Grinling Gibbons, by Edgar Bundy, 5-1729
 Ferdinand and Isabella at the surrender of Granada, by Francisco Pradilla, 14-5043
 Field of the Cloth of Gold, The, 5-1815
 Fighting Téméraire, The, towed to her last berth, by Turner, 6-2233
 Flodden Field, After, by William Eole, 12-4211
 Before, by J. Faed, 12-4211
 Franklin, Benjamin, at the French Court, 10-3486
 hauling paper to his printing shop, by Edward Penfield, 12-4449
 Franklin, Sir John, at the Admiralty, 8-2985
 Frederick Barbarossa proclaimed King of Germany, 11-3967
 Frederick I of Prussia, examining school children, 11-3971
 the Great, welcomed by his subjects, 11-3971
 French Revolution, Scenes from the, 6-2131; 10-3565
 Galileo on trial before the Inquisition, 1-279
 scenes from his life, 1-285
 Gladstone and Disraeli, 7-2295
 Goths entering Rome, The, by Edward Whistler, 4-1195
 Gregory VII and Henry IV at Canossa, 8-2849
 Henry VIII founding St. Paul's School, 5-1824
 James III of Scotland presented to the nobles, by William Eole, 12-4209
 Joan of Arc, by Bastien-Lepage, 7-2479
 at the Rheims Coronation, by Jules Lenepveu, 16-5816
 at the stake, by Jules Lenepveu, 16-5816
 Vision of, by G. W. Joy, 16-5817
 welcomed by the populace, by Jules Lenepveu, 16-5816
 Josephine, Coronation of the Empress, by J. L. David, 6-2079
 Justinian the Great choosing a wife, 13-4799
 King of Rome, The (Napoleon's son), by Sir Thomas Lawrence, 1-151
 Landing of Columbus, The, by John Vanderlyn, 1-82
 Lincoln, President, and his Cabinet, by Francis Bicknell Carpenter, 7-2426
 Louis IX of France, as a boy, and his mother, by Cabanel, 16-5815
 on his throne, 10-3428
 Louis XI of France visiting a peasant, by J. Seymour Lucas, 10-3425
 Louis XVI among his subjects, 10-3435
 in prison, by E. M. Ward, 6-2133
 Margaret, wife of Malcolm III, arriving in Scotland, by William Eole, 12-4206

Historical (continued)

Maria Theresa appealing to the Hungarian nobles, 17-6193
 Marie Antoinette and her family in prison, by E. M. Ward, 6-2133
 facing the mob in the palace, by Alfred Elmore, 6-2126
 on her way to the scaffold, 6-2133
 Mark Antony at the death of Cæsar, by Joseph-Désiré Court, 11-3929
 Mary, Queen of Scots, compelled to abdicate, 12-4213
 escaping from Loch Leven Castle, 12-4213
 mounting the scaffold, 12-4213
 Maximilian receiving an ambassador from Venice, by Carl Becker, 11-3961
 Massacre of St. Bartholomew, The, 10-3429
 Milton dictating to his daughters, by Munkacsy, 4-1237
 playing the organ for Cromwell, by Emanuel Leutze, 12-4434
 shaking hands with Marvell, by G. H. Boughton, 4-1237
 More, Sir Thomas, and his daughter, by J. R. Herbert, 14-5125
 Napoleon, as a boy, at the military academy, by Realier-Dumas, 6-2209
 at the battle of Friedland, by Meissonier, 10-3569
 crossing the Alps, by Delaroche, 6-2205
 in the retreat from Moscow, by Meissonier, 6-2212
 on board the Bellerophon, by Orchardson, 6-2212
 on the evening of Waterloo, by Ernest Crofts, 6-2211
 Napoleon's son (the King of Rome), by Sir Thomas Lawrence, 1-151
 Nelson bidding farewell to his grandmother, by George W. Joy, 6-2209
 on his flagship, the Victory, 6-2210
 receiving the Spanish officers' swords, 6-2205
 Perry, Commodore, at the battle of Lake Erie, by William H. Powell, 17-6332
 Philip II of Spain receiving a deputation from the Low Countries, 14-5039
 Raleigh, Sir Walter, scenes from his life, 14-4958, 4959
 Regulus, the Roman patriot, 1-125; 4-1365
 Reynolds, Sir Joshua, scenes from his life, 7-2333
 Richard Cœur de Lion, and the Sultan Saladin, 7-2589
 entering Joppa, 7-2585
 Richard II giving up his crown, 5-1678
 Rodney, Cesar, arriving at the old State House, by Horace T. Carpenter, 18-6830
 Roland, Madame, in the prison grounds, 6-2129
 Romans in Britain, The, 4-1321, 1323
 Rudolph of Hapsburg condemning robber knights, 11-3967
 Savonarola's bonfire of vanities, by F. W. Topham, 13-4867
 Socrates about to drink the hemlock, by J. L. David, 16-5915
 Stuart, Charles, see Charles I
 Stuart, Charles Edward ("Bonnie Prince Charlie"), by John Pettie, 15-5638
 Taking of the Smala, The, by Horace Vernet, 6-2079
 Tell, William, and his son, 19-7218
 compelled to shoot an apple from his son's head, 16-6005
 Theodora, Empress of Byzantium, 13-4799
 Thomas à Becket, incidents in his life, 5-1569
 Urban II, Pope, preaching the first crusade, 7-2584
 Very gallant gentleman, A, by J. C. Dollman, 14-5088
 Victor Emmanuel II and Garibaldi, 13-4589
 Victoria receiving news of her accession to the English throne, by H. T. Wells, 7-2292
 Vienna, The Congress of, by Isabey, 11-3959
 Wars of the Roses, The, their beginning in the Temple Gardens, 5-1681
 Washington crossing the Delaware, by Emanuel Leutze, 4-1169
 Wellington and his mother, 6-2209
 in the Peninsular War, by R. Hillingford, 14-5043
 on his march to Waterloo, by Ernest Crofts, 6-2211
 surveying the field of Waterloo, 6-2207

KEY TO ILLUSTRATIONS (PAINTING)

Historical (continued)

Whittington, Dick, listening to Bow Bells, by James Sant, 2-759
William I proclaimed German Emperor at Versailles, by A. von Werner, 12-4169
Wreck of the Spanish Armada, The, by Albert Goodwin, 5-1819

Landscape and Marine

Avenue at Middelharnais, The, by Hobbema, 5-1587
Beaching Dutch boats, by H. W. Mesdag, 8-2864
the boat, by Sorolla, 8-2855
Bent tree, The, by Corot, 7-2375
Boats on the River Oise, by Daubigny, 9-3071
Bray on the Thames, by Peter de Wint, 6-2233
Bringing home the cattle, by Thomas Moran, 10-3458
Cache River in the Laurentians, by Maurice G. Cullen, 10-3706
Chichester Canal, by Turner, 6-2229
Coast scene, by George Inness, 10-3463
Cornfield, The, by Constable, 6-2231
Cotopaxi, by F. E. Church, 9-3335
Country scene, by Salomon Ruisdael, 5-1591
Early morning, Lac Tremblant, by Maurice G. Cullen, 10-3710
Embarkation for Cythera, The, by Watteau, 5-1883
Evening, by Corot, 7-2376
Fishing boats, by Richard Bonington, 6-2233
Great oak, The, by Dupré, 7-2374
Harp of the winds, The, by Homer D. Martin, 10-3447
Hay wain, The, by Constable, 6-2231
Hindu devotions, by Turner, 6-2233
Isle of Shoals, by Child Hassam, 10-3463
Landing of Cleopatra, The, by Claude Lorrain, 5-1875
Landscape, by Corot, 7-2376
by Gustave Courbet, 7-2477
by A. B. Durand, 9-3335
Late summer near Herisson, by Harpignies, 9-3076
Looking toward the sea, by Alexander H. Wyant, 10-3458
Meadow, The, by Mauve, 8-2853
Mediterranean scene, A, by Joseph Vernet, 5-1875
Mill on the dyke, The, by Jacob Ruisdael, 5-1587
Mountain ford, The, by Thomas Cole, 10-3458
Northeast, by Winslow Homer, 10-3459
Northern night, by F. H. Johnston, 10-3704
Nut-gatherers in the forest, by Homer Watson, 10-3701
On the river in summer, by Paul Chabas, 8-2862
Outskirts of a town, by Matthew Maris, 8-2864
Parthenon, The, by F. E. Church, 10-3458
Pastoral scene, A, by Frédéric Montenard, 8-2857
Peace and plenty, by George Inness, 10-3463
Pond, The, by Rousseau, 7-2374
Pool of London, The, by W. L. Wyllie, 15-5357
Poringland oak, The, by Crome, 6-2231
Quay at Rouen, The, by Pissarro, 8-2713
Quebec village street in winter, by Clarence A. Gagnon, 10-3707
Rainy day, A, by Frederick Walker, 8-2921
Regatta day, by Lucien Simon, 8-2857
River in summer, A, by Monet, 7-2477
River scene, A, by Richard Bonington, 6-2232
with cattle, by Cuyp, 5-1591
Road to Mount Valerien, The, by Alfred Sisley, 8-2713
Roaring forties, The, by Frederick J. Waugh, 10-3459
Sand dunes, by Homer D. Martin, 10-3459
Santa Giustina, Padua, by J. R. Cozens, 6-2233
Seine at Argenteuil, The, by Monet, 7-2477
Snow, by John H. Twachtman, 10-3459
Spring, by Mauve, 8-2853
Spring morning, by Dwight W. Tryon, 10-3458
Stag fight in the forest, The, by Gustave Courbet, 7-2477
Storm, The, by Diaz, 7-2376
Sunset, by Daubigny, 7-2375
Thunder cloud, The, by Farquhar McGillivray Knowles, 10-3710
Toilers of the sea, by Albert P. Ryder, 10-3462

Landscape and Marine (continued)

Toll-gate, The, by Cornelius Kreighoff, 10-3699
Up the Hudson, by George Bellows, 10-3463
Venice, by Turner, 9-3069
Water gate, The, by Daubigny, 9-3071
Western sunlight, by Charles William Jefferys, 10-3706
Winter, Georgian Bay, by Alexander Young Jackson, 10-3707
Wreck, The, by Winslow Homer, 10-3459

Mosaic

Figure of St. Michael, 2-577
6th century, 2-577
From Pompeii, Defeat of Darius by Alexander the Great, 2-709
From Ravenna, 4th century, 1-70
6th century, 2-577
wall in church of San Vitale, 2-581
From St. Mark's, Venice, figure of St. Mark, 13-4564
figure of the Virgin, 2-579
group of figures, 2-579
section of wall, 2-577
From Sicily, old decorative designs, 2-575

Portrait

Adams, John, 5-1694; (in group), by John Trumbull, 4-1167
Adams, John Quincy, 10-3491
Althorp, Lord, by Sir Joshua Reynolds, 6-2119
Ariosto, by Titian, 3-1105
Arnolfini, Jan, and his wife, by Jan van Eyck, 4-1223
Arundel, Earl of, and his grandson, by Van Dyck, 5-1584
Audubon, John J., by F. Cruikshank, 19-7052
Auerbach, Boniface, by Holbein, 4-1350
Bacon, Francis, 5-1821
Baillie family, The, by Gainsborough, 7-2339
Balthasar Carlos, Prince, by Velasquez, 4-1502, 1503
Bancroft, George, by Richter, 13-4822
Banquet of the officers of St. George's Shooting Company, by Frans Hals, 12-4181
Bartolozzi, F., by John Opie, 6-2109
Baumgartner, Stephen, as St. George, by Albrecht Dürer, 4-1347
Bellini, Giovanni, 4-1455
Bertin the Elder, by Ingres, 6-2079
Biddle, Major Thomas, by Sully, 9-3324
Bismarck, by Franz von Lenbach, 8-2863
Boleyn, Anne, 5-1821
Borg, Katharine von, by Lucas Cranach the Elder, 4-1346
Borro, Alessandro del, by Velasquez, 4-1502
Bourne, Mrs. Sylvanus, by Copley, 3-969
Bowles, Miss, by Sir Joshua Reynolds, 7-2340
Boy as Pierrot, A, by Fragonard, 5-1879
Brignole-Sale, Andrea, on horseback, by Van Dyck, 5-1587
Burghey, William Cecil, Lord, 5-1821
Burns, Robert, 6-2136
Butts, Edmund, by John Bettes, 6-2003
Caligraphist, The, by Rembrandt, 5-1716
Calvert, Cecil, 12-4153
Calmady children, The, by Sir Thomas Lawrence, 9-3072
Carmencita, by Sargent, 10-3460
Carwardine, Mrs., and child, by Romney, 7-2337
Chaucer, with the Canterbury Pilgrims, by Thomas Stothard, 1-301
Castiglione, Balthasar, by Raphael, 3-964
Cézanne, Paul, self-portrait, 8-2712
Charpentier, Madame, and her children, by Renoir, 8-2711
Cheseman, Robert, by Holbein, 4-1351
Children of Charles I, The, by Van Dyck, 5-1585
Cimabue, 5-1735
Clay, Henry, 10-3493
Cleveland, Duchess of, by Sir Peter Lely, 6-2003
Clinton, De Witt, 5-1694
Clinton, Sir Henry, 4-1161
Cockburn, Lady, and her children, by Sir Joshua Reynolds, 7-2338
Cockshutt, Henry, by E. Wyly Grier, 10-3703
Cogniet, Léon, by Bonnat, 8-2863
Coke, Sir John, by Cornelius Jonson, 6-2003
Cranmer, Thomas, 5-1821
Craven, Lady, by Romney, 6-2115

KEY TO ILLUSTRATIONS (PAINTING)

Portrait (continued)

Cromwell, Oliver, by Christian Richter, 1-67
 by Ford Madox Brown, 11-3849
 Curry, Mrs. Mark, by Romney, 6-2114
 Cuvier, Georges, in his laboratory, 2-588
 Damien, Father, by Edward Clifford, 7-2321
 Daughters of the artist, The, by Gainsborough, 7-2340
 Davis, Mary, by Sir Peter Lely, 6-2002
 Dawson, Sir J. William, 19-7055
 De Peyster, Johanna and Johannes, 3-969
 de Pola, Laura, by Lorenzo Lotto, 3-1111
 Doge Giovanni Mocenigo, by Gentile Bellini, 3-1105
 of Venice, A, by Giovanni Bellini, 1-68
 D'Ognes, Charlotte du Val, by J. L. David, 6-2076
 Douglas, Stephen A., 10-3493
 Edward VI, the boy king, by Holbein, 5-1823
 Edwards, Jonathan, 12-4445
 Elizabeth, Queen, by Federico Zuccherro, 5-1821
 Elizabeth, Princess of Austria, by François Clouet, 4-1224
 Essex, Earl of, by Isaac Oliver, 6-2003
 Essex, 2nd Earl of, 5-1821
 Espagnac, Comte d', Vigée Le Brun, 5-1878
 Este, Alfonso d', by Titian, 3-1109
 Este, Beatrice d', by Leonardo da Vinci, 3-825
 Este, Francesco d', by Velasquez, 4-1504
 Ferdinand of Austria, by Velasquez, 1-71
 Fergusons, The two, by Raeburn, 6-2120
 Fornarina, La, by Piombo, 3-1111
 Fothergill, Dr., by Gilbert Stuart, 9-3329
 France, Anatole, by Carrière, 8-2709
 Franklin, Benjamin, 10-3491; 12-4448
 (in group), by John Trumbull, 4-1167
 Frederick the Great, 11-4048
 Frederick William, Elector of Brandenburg, by Wilhelm Camphausen, 11-3969
 Gainsborough's daughters, by their father, 7-2340
 Gallatin, Albert, 10-3491
 Gardiner, Bishop, by Quentin Matsys, 4-1223
 Gardiner, Mrs., and her children, by Hoppner, 6-2112
 Gay, John, by Sir Godfrey Kneller, 6-2003
 General, A, by Giorgione, 4-1457
 George IV, by Hoppner, 6-2120
 Gioconda, La (Mona Lisa), by Leonardo da Vinci, 3-829
 Gibbs, Mrs., by Sir William Orpen, 8-2861
 Gisze, George, by Holbein, 4-1350
 Godslove, Sir Thomas, and his son John, by Holbein, 4-1350
 Goethe, Johann Wolfgang von, by J. K. Stieler, 17-6412
 Gower, Lady, by Sir Thomas Lawrence, 6-2114
 Grammont, Comtesse de, by Sir Peter Lely, 6-2003
 Grand Duchess Eleanor, by Bronzino, 3-964
 Gratz, Rebecca, by Sully, 19-7164
 Greenleaf, Mrs. James, by Gilbert Stuart, 9-3329
 Griswold, Mrs. James C., by Charles L. Elliott, 9-3329
 Gwyn, Nell, by Sir Peter Lely, 6-2003
 Hamilton, Alexander, 10-3491; by John Trumbull, 9-3328
 Hancock, John (in group), by John Trumbull, 4-1167
 Handel, George Friederich (after Hudson), 19-7072
 Hare, Master, by Sir Joshua Reynolds, 6-2118
 Hastings, Warren, by Sir Thomas Lawrence, 6-2109
 Haverfield, Miss, by Gainsborough, 1-68
 Haydn, Franz Josef, 19-7073
 Heads, Three studies of, by Greuze, 5-1873
 Heathfield, Lord, by Sir Joshua Reynolds, 6-2120
 Henry VIII, by Holbein, 5-1822
 Holzschuher, Jerome, by Albrecht Dürer, 4-1347
 Infante Philip Prosper, by Velasquez, 4-1494
 Innocent X, Pope, by Velasquez, 4-1504
 Isabella, Donna, by Goya, 9-3074
 Isabella, Empress, by Titian, 3-1110
 Izard, Mr. and Mrs. Ralph, by Copley, 9-3324
 Jefferson, Thomas (in group), by John Trumbull, 4-1167
 Jennings, Sarah, by Sir Godfrey Kneller, 6-2002
 John, by Frederick Varley, 10-3709

Portrait (continued)

Jones, John Paul, 17-6327
 Jordan, Mrs., as the Comic Muse, by Hoppner, 6-2116
 Julius II, Pope, by Raphael, 3-962
 Kerr, Lady, by Romney, 7-2338
 Kleist, Heinrich Wilhelm von, 17-6270
 Lady, A, ancient Roman portrait, 2-452
 by François Boucher, 15-5311
 by Piero della Francesca, 2-696
 by Raeburn, 6-2115
 by Allan Ramsay, 6-2109
 by Velasquez, 4-1504
 Lady Cockburn and her children, by Sir Joshua Reynolds, 7-2338
 Lady Craven, by Romney, 6-2115
 Lady Georgiana Spencer, by Gainsborough, 6-2118
 Lady Gower, by Sir Thomas Lawrence, 6-2114
 Lady Jean (the artist's daughter), by George Bellows, 10-3464
 Lady Kerr, by Romney, 7-2338
 Lady Wentworth, by Copley, 9-3324
 Lady Williams and child, by Ralph Earle, 3-969
 Le Brun, Madame and her daughter, by Vigée Le Brun, 5-1880
 Leicester, Robert Dudley, Earl of, 5-1821
 Lessing, Gotthold Ephraim, 17-6269
 Lindow, Mr. and Mrs., by Romney, 6-2114
 Linley, Miss, and her brother, by Gainsborough, 1-68
 Lister Lord, 15-5485
 Livingston, Robert (in group), by John Trumbull, 4-1167
 Madison, James, 11-3947
 Man, A, by Holbein, 9-3074
 by Thierry Bouts, 4-1228
 Study of, by Rembrandt, 5-1716
 Man and his wife, by Frans Hals, 9-3075
 Man with a sword, by Frans Hals, 5-1587
 Man with the hoe, The, by Jean François Millet, 8-3003
 Manning, Cardinal, by G. F. Watts, 6-2237
 Margaret, Princess, daughter of Philip IV, by Velasquez, 4-1503
 Mariana, Queen of Austria, by Velasquez, 4-1504
 Marie Antoinette and her children, by Vigée Le Brun, 6-2009
 Marlborough, Duke of, by Sir Godfrey Kneller, 6-2002
 Marquand, Henry G., by Sargent, 10-3460
 Marsham family, The, by Gainsborough, 6-2119
 Mary, Queen of Hungary, by Velasquez, 4-1503
 Mary, Queen of Scots, 5-1821; 12-4204
 Medici, Ferdinand de, by Bronzino, 3-963
 Medici, Lorenzo de, as one of the Magi, by Benozzo Gozzoli, 5-1745
 Medici, Maria de, by Bronzino, 9-3074
 Medici, Piero de, by Bronzino, 3-964
 Menippus, by Velasquez, 4-1502
 Michelangelo, 1-61
 Miffin, Mrs. Rebecca Edgehill, and granddaughter, by Charles Willson Peale, 3-971
 Miffin, Samuel, by Charles Willson Peale, 3-971
 Milton, John, 4-1235
 Mohammed II, Sultan, by Gentile Bellini, 3-1105
 Mona Lisa (La Gioconda), by Leonardo da Vinci, 3-829
 Morland, George, self-portrait, 7-2329
 Mother of the artist, The, by Rembrandt, 5-1716
 by Whistler, 10-3446
 My cousin Candida, by Zuloaga, 8-2854
 My daughter, by Frank W. Benson, 10-3461
 Newton, Lord, by Raeburn, 7-2339
 Nobleman, A, by Moretto, 3-1112
 Old cook, The, by Velasquez, 9-3072
 Old lady, An, by Rembrandt, 1-68
 Old man, An, by Memling, 4-1228
 Old woman cutting her nails, by Rembrandt, 5-1708
 Olivares, Duke of, by Velasquez, 4-1502
 Oxford, Countess of, The, by Hoppner, 7-2338
 Peachum, Polly, by Hogarth, 6-2005
 Peale, Charles Willson, by Benjamin West, 9-3329; self-portrait, 9-3326
 Penn, William, 12-4153
 Philip IV of Spain, by Velasquez, 4-1501, 1503
 Pinkney, Isabel, by Spencer Watson, 8-2861

KEY TO ILLUSTRATIONS (PAINTING)

Portrait (continued)

- Polish soldier, A, by Rembrandt, 5-1715
 Porter, Endymion, by William Dobson, 6-2003
 Portinari, Marie, by Memling, 4-1223
 Thomas, by Memling, 4-1229
 Poyntz, Mr., by Gainsborough, 6-2114
 Raleigh, Sir, by Walter, 5-1821
 Ramsay, Mrs. Allan, by her husband, 6-2115
 Raphael, by Pinturicchio, 3-964
 Récamier, Madame, by J. L. David, 6-2078
 Rembrandt, self-portrait, 5-1713, 1716
 Reynolds, Sir Joshua, self-portrait, 7-2335
 Ribblesdale, Lord, by Sargent, 10-3460
 Riley, James Whitcomb, by Sargent, 13-4821
 Sackville children, The, by Hoppner, 6-2118
 Saskia, by Rembrandt, 5-1715
 Schongauer, Martin, by Hans Burgkmair, 4-1346
 Servants of the artist, The, by Hogarth, 9-3072
 Seward, William Henry (in group), by Francis Bicknell Carpenter, 7-2426
 Sforza, Lodovico, by Leonardo da Vinci, 3-825
 Shakespeare, William, 1-79; 5-1821
 Shaw, George Bernard, by Augustus John, 8-2861
 Sherman, Roger (in group), by John Trumbull, 4-1167
 Siddons, Mrs., by Sir Thomas Lawrence, 7-2339
 as the Tragic Muse, by Sir Joshua Reynolds, 6-2113
 Sinclair, Sir John, by Raeburn, 6-2115
 Siphtah, King of Egypt (mural), 1-293
 Sister of the artist, The, by Hogarth, 6-2005
 Sisters, The three, by Palma Vecchio, 3-1105
 Snyders, Frans, and his wife, by Van Dyck, 5-1587
 Sons of the artist, The, by Rubens, 5-1589
 Spencer, Lady Georgiana, by Gainsborough, 6-2118
 Lavinia, Countess, by Sir Joshua Reynolds, 6-2117
 Stanton, Edwin M. (in group), by Francis Bicknell Carpenter, 7-2426
 Stuart, James, Duke of Lennox, by Van Dyck, 5-1584
 Stuyvesant, Peter, 2-549
 Suggia, Madame, by Augustus John, 8-2861
 Swalmius, Burgomaster Eleazar, by Rembrandt, 5-1714
 Tarleton, Banastre, 4-1161
 Thackeray, William Makepeace, in his study, 8-2731
 Tolstoy, by Jan Styka, 8-2852
 Turner, J. M. W., by Charles Turner, 7-2336
 Unknown man, An, by El Greco, 9-3073
 Van Colter, Suzanna, with her little daughter, by Rembrandt, 5-1715
 Vaniero, Admiral, by Tintoretto, 4-1454
 Veronese, Paul, two self-portraits, 4-1463
 Wallis, Dr. John, by Sir Godfrey Kneller, 6-2002
 Washington, George, by Gilbert Stuart, 9-3327; 11-3946
 and his family, by Edward Savage, 3-971
 Washington, Martha, 2-391
 Wayne, Anthony, 4-1165
 Welles, Gideon (in group), by Francis Bicknell Carpenter, 7-2426
 Wellington, Duke of, 6-2199
 Wentworth, Lady, by Copley, 9-3324
 Wertheimer, Mrs., by Sargent, 10-3460
 Whitman, Walt, by John W. Alexander, 13-4729
 William of Orange as a boy, by Rembrandt, 5-1714
 Williams, Lady, and child, by Ralph Earle, 3-969
 Woman, A, by Frans Hals, 5-1590
 by van der Helst, 7-2719
 Woman and child, by Frans Hals, 1-69
 Woman's head, Study of a, by Desnard, 8-2709
 Wyatt, Margaret, Lady Lee, by Holbein, 4-1349
 Young man, A, by Albrecht Dürer, 4-1347
 by Holbein, 4-1351
 Young woman, A, by Abbott Thayer, 10-3446

Religious

- Adoration of the Child, The, by Gerard David, 4-1224
 by the Magi, by Albrecht Dürer, 4-1346
 by the shepherds, by Hugo van der Goes, 4-1223
 by José Ribera, 4-1494
 by the Wise Men, by Stephen Lochner, 4-1343

Religious (continued)

- Adoration of the Lamb, by Hubert van Eyck, 4-1223
 Angel of the Annunciation, The, by Memmi, 2-696
 Annunciation, The, by Dante Gabriel Rossetti, 6-2240
 by Roger van der Weyden, 4-1220
 Betrayal by Judas, The, by Cimabue, 2-696
 Bishop and St. Geneviève, A (mural), by Puvis de Chavannes, 7-2478
 Christ and the pilgrims of Emmaus, by Velasquez, 4-1497
 and the Saints, Byzantine, 12-4469
 Betrayal of, by Judas, by Cimabue, 2-696
 in the manger, by Hugo van der Goes, 4-1221
 washing Peter's feet, by Ford Madox Brown, 6-2237
 Creation, The, and other Old Testament themes (Sistine Chapel), by Michelangelo, 3-822
 of Adam (detail of above fresco), 3-826
 Flight into Egypt, The, by Giotto, 2-694
 Holy Family, The, by Michelangelo, 3-827
 by Raphael, 3-963
 by Rubens, 5-1584
 (with St. Catherine), by Titian, 3-1111
 (with St. Paul and St. George), by Giovanni Bellini, 3-1110
 Jesus among the Doctors, by Luini, 3-1103
 ancient mural paintings, 2-577
 Infant, and the infant St. John, by Murillo, 4-1494
 Last Supper, The, by Leonardo da Vinci, 3-830
 Madonna, The, *see also* Virgin; Mary (and angels), by Murillo, 4-1497
 adoring the Child, by Filippo Lippi, 2-690
 Madonna and Child, by Fra Angelico, 2-694
 by Giovanni Bellini, 3-1110; 4-1457
 by Botticelli, 2-690; (with angels), 2-695
 Byzantine mosaic, 2-579
 (of the Basket), by Correggio, 3-1105
 (with St. Jerome), by Correggio, 3-1111
 by Lorenzo di Credi, 2-690
 by Duccio, 2-697
 (with saints and angels), by Ghirlandaio, 2-693
 (The Flight into Egypt), by Giotto, 2-694
 (of the Burgomaster Meyer), by Holbein, 4-1352
 by Filippo Lippi, 2-690
 (with St. Francis and St. John), mural by Lorenzetti, 2-691
 by Quentin Matsys, 4-1223
 by Memling, 4-1224
 (Holy Family), by Michelangelo, 3-827
 (with angels), by Laura Muntz, 10-3708
 by Murillo, 4-1497
 (with saints and angels), by Perugino, 3-964
 by Raphael, 3-963
 (del Granduca), by Raphael, 3-961
 (La Belle Jardinière, with St. John), by Raphael, 3-963
 (of the chair), by Raphael, 3-964
 (Sistine), by Raphael, 3-962
 by van der Weyden, 4-1223
 (of the Cuccina family), by Paul Veronese, 3-1112
 (of the Rocks, with St. John and an angel), by Leonardo da Vinci, 3-825
 (with St. Anne), by Leonardo da Vinci, 3-825
 Magdalen, by Paul Veronese, 3-1112
 Marriage at Cana, The, by Paul Veronese (Dresden), 3-1110; (Louvre), 4-1454
 Marriage of St. Catherine, The, by Tintoretto, 3-1112
 of the two St. Catherine's, by Borrognone, 3-1105
 Mary, The death of, by Holbein the Elder, 4-1347
 Miracle of St. Hugo, The, by Zurbaran, 4-1494
 Nativity, The, by Fra Angelico, 2-694
 St. Ambrose as Bishop of Milan refusing Theodosius admittance to the cathedral, by Rubens, 13-4861
 St. Augustine preaching before Ethelbert and his queen, 2-475
 reading philosophy at the school of Rome, by Benozzo Gozzoli, 2-695
 St. Barbara, by Francia, 4-1457
 St. Basil, by El Greco, 4-1494
 St. Benedict, by Memling, 6-1996
 St. Bernard, Scene from the life of, 13-4865
 St. Boniface destroying the sacred oak, 13-4861

KEY TO ILLUSTRATIONS (SCULPTURE)

Religious (continued)

- St. Bruno and Pope Urban II, by Zurbaran, 4-1494
 St. Catherine (with the Holy Family), by Titian, 3-1111
 St. Catherine of Alexandria, by Pinturicchio, 3-962
 bound, by Gaudenzio Ferrari, 6-1995
 Marriage of, by Tintoretto, 3-1112
 St. Catherine's Marriage of the two, by Borgognone, 3-1105
 St. Cecilia, by Gustave Moreau, 7-2478
 by Hugo van der Goes, 4-1223
 by Hubert and Jan van Eyck, 6-1998
 St. Christopher, by Joachim Patinir, 6-1993
 St. Francis, by Taddeo Bartolo, 2-696
 (with the Madonna and Saint John), by Lorenzetti, 2-691
 Death of, by Giotto, 2-696
 preaching to the birds, by Giotto, 6-1990
 St. Geneviève and a bishop, by Puvis de Chavannes, 7-2478

Religious (continued)

- St. George, by Mantegna, 3-1112
 (with the Holy Family), by Giovanni Bellini, 3-1110
 slaying the dragon, 1-357
 St. Helena, Vision of, by Paul Veronese, 5-1692
 St. Jerome, The Last Communion of, by Il Domenichino, 13-4865
 St. John the Baptist, by Andrea del Sarto, 3-964
 in the desert, by Raphael, 3-964
 St. Nicholas helping the poor, by Lorenzo di Bicci, 6-1990
 St. Paul (with the Holy Family), by Giovanni Bellini, 3-1110
 St. Stephen in dispute with the Doctors, by Carpaccio, 4-1454
 St. Ursula, The death of, by Memling, 6-1993
 Transfiguration, The, by Giovanni Bellini, 3-1112
 Virgin, The, by Lorenzo di Credi, 2-696
 Visitation, The, by Ghirlandaio, 2-690

SCULPTURE

A

- Æolus, statue, by Giovanni da Bologna, 13-4614
 Æschylus, Greek head, 16-5747
 Æsculapius, Greek head, 12-4219
 Age of Bronze, statue, by Rodin, 13-4705
Agessander, Polydorus and Athenodorus, Greek sculptors (1st century B.C.)
 Death of Laocoön and his sons, 12-4462
 text, 12-4460
 Akhenaten, king of Egypt, *see* Amenhotep IV
 Alcibiades, bust, 2-701
 Alexander the Great, bust, 2-701
 Alexander III Bridge across the Seine at Paris, 11-3826
 Alfred the Great, plaque, 4-1437
Allward, Walter S., Canadian sculptor (1875-)
 Alexander Graham Bell monument, 17-6245
 Baldwin-Lafontaine group, 14-5080
 South African memorial, 14-5077
 text, 14-5078
 Altar, Roman archaic, 4-1318
 Amazon, statue, after Polyclitus, 12-4334
 Amazons, figures in relief, from mausoleum of Halicarnassus, 1-53
 Amboise Castle, France, figures over door of chapel, 12-4469
 Amen, Egyptian god, head, 3-816
 Amenhotep III, head, 11-3878
 Amenhotep IV, head, 3-816
 American Expeditionary Forces, memorial to, by Mrs. Harry Payne Whitney, 17-6291
 Angel, Gothic, in wood, 13-4855
 Angel of Death, The, and the Sculptor, by Daniel Chester French, 14-4937
 Angels, by Luca della Robbia, 5-1748; 13-4615
 Annunciation, The, group, by Donatello, 5-1745
 Antinous, friend of Hadrian, Roman bust, 12-4462
 Antoninus Pius (Titus Aurelius), Roman Emperor, statue, 5-1865
 Aphrodite of Cnidus, head, by Praxiteles, 12-4329
 See also Venus
 Apollo, Greek statue, 11-3993
 Apollo Belvedere, copy of a Greek statue, 12-4464
 Apostle, French, 15th century, 13-4855
 Apoxyomenus, statue, by Lysippus, 12-4335
 Archaics
 Egyptian, 2-452; 3-817
 Greek, 2-452; 11-3989, 3991, 3993
 Irish, 8-2941, 2942
 Roman, 2-452; 4-1318, 1319
 Saxon, 4-1437
 Archers of Darius, frieze at Susa, 1-292
 Aristides, Greek bust, 2-701
 Aristophanes, Greek head, 16-5747
 Aristotle in thoughtful mood, statue, 16-5914
 Artemis (Diana), Greek statue from Delos, 11-3991
 Artemis of Versailles, The, or Diana the Huntress, 12-4464

- Ashur-bani-pal, Assyrian king, figure in relief, 2-657
 hunting, frieze, 2-647
 leading his horse, bas-relief, 11-3880
 Ashur-nazir-pal, Assyrian king, statue, 2-657
 and a courtier, bas-relief, 11-3880
 Asshur, chief Assyrian god, bas-relief, 11-3880
 Atalanta running, statue, 12-4459
 Athena (Minerva), head, by Phidias, 12-4219
 statue in Parthenon, by Phidias, 3-1079
 statue in Vatican, 4-1201
Athenodorus, *see* Agessander
 Augustus (Gaius Octavius), Roman Emperor, as a boy, bust, 12-4463
 in full armor, statue, 1-71
 statue, 5-1860
 Aztec Indian carvings, Mexico, 1-163

B

- Babylon, boundary stone from, 11-3880
 Bacchus (Dionysus) and a faun, group, 12-4665
 Baldwin-Lafontaine group, by Walter S. Allward, 14-5080
 Bambino, plaque, by Andrea della Robbia, 13-4612
 Baptistery of Duomo, Florence, 5-1744
 bronze doors, by Ghiberti, 5-1741
 figures from doors, 13-4603
Barnard, George Grey, American sculptor (1863-)
 Two Natures, 14-4935
 text, 14-4938
Bartholomé, Paul Albert, French sculptor (1878-1928)
 Tomb of Death in Père-Lachaise Cemetery, Paris, 13-4705
 text, 13-4706
Bartlett, Paul W., American sculptor (1865-1925)
 The bear-tamer, 14-4935
 text, 14-4938
Barye, Antoine Louis, French sculptor (1795-1875)
 Theseus and the Centaur Bianor, 13-4705
 text, 13-4706
Bates, Harry, British sculptor (1850-1899)
 Socrates talking on justice and life, 16-5917
 text, 13-4856
 Bear-tamer, group, by Paul W. Bartlett, 14-4935
 Beethoven, Ludwig van, statue, by R. Weigls, 19-7076
 Bell, Alexander Graham, monument, by Allward, 17-6245
 Benares, India, carvings in temple, 9-3096
 Black Hawk, statue, by Lorado Taft, 15-5281
 Boadicea, statue, by H. Thornycroft, 13-4585
Boethus, Carthaginian sculptor (3d century B.C.)
 Boy and Goose, 12-4463
 text, 12-4467-68
Bologna, Giovanni da (Italian for his real name, Jean Bologne or Boullongne), French sculptor (1524-1608)
 Æolus, 13-4614
 Mercury Taking Flight, 13-4609
 text, 13-4608

KEY TO ILLUSTRATIONS (SCULPTURE)

Book cover carved in bronze, 8-2941
 Borghese warrior, Greek statue, 12-4336
Borglum, John Gutzon Mothe, American sculptor (1867-)
 The horses of Diomed, 8-2703
text, 14-4939
 Borromeo, Carlo, colossal statue, 10-3466
 Bowman and a man with a lance, Greek sculpture, restored, 11-3993
 and wounded warrior, Greek sculpture, restored, 11-3993
 Boy and goose, group, by Boethus, 12-4463
 Brahe, Tycho, effigy, 1-202
 Brandenburg Gate in Berlin, Quadriga on the, 12-4179
 Britain, Roman statues found in, 4-1318
Brunelleschi, Filippo, Italian sculptor and architect (1379-1446)
 portrait head of, 5-1735
text, 5-1738-39
 Buddha, images in stone and bronze, 2-569;
 9-3085-87, 3096
 teaching his pupils, sculptured group, 9-3087
 Burghers of Calais, group, by Rodin, 13-4704
 Byzantine triptych, Christ and the Saints, 12-4469

C

Calder, Alexander Stirling, American sculptor (1870-)
 Little Bear with the Tiny Black Swan, 14-4935
text, 14-4940
 Caligula, Roman Emperor, statue, 5-1861
 Cano, Sebastian del, statue, 1-90
 Canterbury cathedral, England, doorways, 16-5965
Carpeaux, Jean Baptiste, French sculptor (1827-1875)
 Study for La Danse, 13-4705
text, 13-4706
 Caryatid from Erechtheum, in British Museum, 12-4217
 Caryatids on Erechtheum, Athens, 3-1068
 Cato, Roman head, 16-5907
 Cavalryman of 14th century, 1-66
 Centaur groups, from the Parthenon, 12-4217
 Chares, King, fragment of statue, 11-3991
Chares of Lindus, Rhodian sculptor, (c. 290-280 B.C.)
 Colossus of Rhodes, 7-2607
text, 7-2604
 Child's head, by Donatello, 13-4615
 China, sculptures on pagodas and arches, 15-5479
 Chinese goddess in white porcelain, 1-71
 Christ and the Saints, Byzantine triptych, 12-4469
 Choric monument of Lysicrates, Athens, 15-5350
text, 15-5345
 Cicero, Roman head, 16-5907
 Cimabue, head, 5-1735
 in group, with Giotto, 5-1734
 Claudius I, Roman emperor, statue, 5-1861
 Cleopatra's Needles, obelisks, 10-3547; 17-6216
 Clytie, Roman portrait bust, 12-4462
 Cnidian Venus, *see* Aphrodite of Cnidus
 Coffin lid from Kells, Ireland, 8-2942
 Coins, early, 16-5680
 Colet, John, statue, 14-5253
 Colleon, equestrian statue, by Verrocchio, 4-1468; 13-4614
 Colossus of Rhodes, gigantic figure, by Chares of Lindus, 7-2607
 Columbus, Christopher (Cristobal Colon), statue in Mexico City, 19-7139
 Columns with sculptured decorations
 capital of Roman column, 4-1318
 Congress, at Brussels, 15-5505
 of Marcus Aurelius, Rome, 15-5351
 of San Marco, Venice, 4-1468
 of the Doric, Ionic and Corinthian Orders, decoration of, 15-5343
 on the site of the Bastille, Paris, 11-3828
 Vendome, Paris, 11-3828
 Confucius, statue, 9-3085
 Congress column, Brussels, 15-5505
 Creation of Man, statue, by Rodin, 13-4705
 Cross, Saxon, at Hexham, England, 4-1437
 Crosses of ancient Ireland, 8-2941-42
 Cuiclahuac, statue, Mexico City, 19-7135
 Cupid with a Dolphin, Greek, 12-4466

D

Dallin, Cyrus E., American sculptor (1861-)
 Signing the Mayflower Covenant, 7-2525
text, 14-4939
Dalou, Jules, French sculptor (1838-1902)
 Peasant woman, head, 13-4705
text, 13-4706
 Dancer and gazelles, group, by Paulanship, 14-4935
 Dancing cherubs from Singing Gallery of Donatello, 13-4612, 4613
 Danse, La, by Carpeaux, 13-4705
 Dante Alighieri, sculptured portrait from tomb, 17-6149
 David, statue by Donatello, head of, 13-4614
 statue by Michelangelo, 1-65, 68; 5-1742
 statue by Verrocchio, 13-4614
 statue, copy in marble of Michelangelo's, 5-1742
 Défricheur, Le (The pioneer), group, by Alfred Laliberté, 14-5076
Della Robbia, Andrea, Giovanni and Luca, *see* Robbia
 Demosthenes, Greek bust, 2-701
 Dendera, Temple of, carvings, 14-5206
 Diadumenus, the victorious athlete, statue after Polyclitus, 12-4334
 Diocletian, Emperor of Rome, head, 5-1866
 Dionysus (Bacchus) and a faun, group, 12-4465
 Discobolus, statue, by Myron, 12-4219
Donatello (Donato di Betto Bardi), Italian sculptor (1386-1466)
 portrait statue of, 5-1735
 Annunciation, The, 5-1745
 Child's head, 13-4615
 Dancing cherubs from the Singing Gallery, 13-4612-13
 David, 13-4614
 Gattamelata, equestrian statue, Padua, 13-4615
 Group of happy children, 13-4610
 St. George, 13-4613
 Singing Gallery, 5-1745; 13-4616; panels, 13-4611-13
text, 13-4604-05, 4607
 Doorways with sculptured decorations
 Ghiberti's doors, Florence, 5-1741
 in America, the Alamo, 18-6829
 in Burma, 15-5479
 in France, 12-4469; 17-6157
 in Italy, 4-1467-68; 16-5722; 17-6306
 Moorish, in Spain, 15-5473
 Norman, in England, 5-1567; 16-5974
 Doryphorus, the spear-bearer, statue, after Polyclitus, 12-4334
 Dying Gaul, The, statue, 4-1208

E

Egypt, Antiquities from, 3-817
 Coffin from, 1-66
 Food carriers, statuettes, 1-70
 Head 5,000 years old, 11-3879
 Sculptures in relief, 3-817
 Statues, 11-3877-78
 Thebes, Gigantic statues near, 3-819
 Elgin marbles, sculptures from Parthenon, now in British Museum, 12-4215, 4217, 4219
 End of the Trail, The, by James Earle Fraser, 1-266
 England, Roman statues found in, 4-1318
 Erechtheum, Athens, caryatids of south porch, 3-1068
 caryatid in British Museum, 12-4217
 Esarhaddon, Assyrian king, statue in relief, 2-657
 Etruscan vessel in bronze, 1-70
 Euclid, Greek mathematician, bust, 2-701
 Euripides, Greek head, 16-5747
 Evelyn, portrait head, by Sir W. Goscombe John, 13-4853

F

Farnese Bull, group, by Rhodian sculptors, 12-4463
 Farnese Hercules, statue, by Glycon, 12-4465
 Faun, A, statue by Praxiteles, copy of, 12-4335
 Fettered Slave, statue, by Michelangelo, 13-4612
 Figure in a church, Venice, 4-1463
 Figures on tomb in Acropolis of Naxos in Lycia, 11-2991
 Food-carriers of old Egypt, statuettes, 1-70

KEY TO ILLUSTRATIONS (SCULPTURE)

Ford, Edward Onslow, English sculptor (1852-1901)
Peace, 13-4855
text, 13-4855
 Fortuna, 16th century statue, 1-71
 Fountain near Florence, 5-1742
 Franklin, Benjamin, portrait bust by Houdon, 13-4703
Fraser, James Earle, American sculptor (1876-)
End of the Trail, 1-266
Frémiet, Emmanuel, French sculptor (1824-1911)
Joan of Arc, 16-5813
text, 13-4706
French, Daniel Chester, American sculptor (1850-)
Statue of Lincoln, 3-1038
The Angel of Death arresting the hand of the Sculptor, 14-4937
The Minute Man, 4-1174
text, 14-4937-38
 Frog Fountain, by Janet Scudder, 14-4935

G

Galen, Greek bust, 8-2721
 Gama, Vasco da, statue, 1-89
 Garibaldi, Giuseppe, equestrian statue, 13-4582
 Gateways with sculptured decorations
 at Constantinople, 1-72
 at Kilpeck, England, 5-1567
 at Norwich, England, 500 years old, 1-72
 in Egypt, 14-5213
 of lions, Mycenæ, 8-3010; 11-3991
 of Santa Maria, Burgos, Spain, 14-5047
 of Kerman, Persia, 3-919
 of Teheran, Persia, 3-920
 of the Two Kings, Japan, 2-567
 Gattamelata, equestrian statue, by Donatello, 13-4615
Gérôme, Jean Léon, French painter and sculptor (1824-1904)
Napoleon, statuette, 1-71
Ghiberti, Lorenzo, Italian sculptor (1378-1455)
portrait of, 5-1735
Bronze doors, Baptistery, Florence, 5-1741
panel, 13-4603
text, 5-1737-38
Gilbert, Alfred, English sculptor (1854-)
Perseus arming, 13-4855
text, 13-4854-55
 Giotto, portrait statue, 5-1735; in group, 5-1734
 Girl with grapes, by Florence Wylie, 14-5079
 Gizeh, Egypt, sphinx, 1-352; 3-819
 Gladiator, A. Roman statue, 12-4459
Glycon, Greek sculptor (1st century B.C.)
The Farnese Hercules, 12-4465
text, 12-4468
 God of darkness, Assyrian bas-relief, 2-647
 Goddesses of 6th century B.C., Figures of, 3-1071
 Gog, gigantic figure in Guildhall, London, 14-5195
 Golden Dog, The (Le Chien d'Or), tablet, Quebec, 15-5367
 Gosain Temple, Benares, carved interior, 9-3096
 Gothic angel, in wood, 13-4855
 Gothic figures, doorway, Notre Dame, Paris, 12-4469
 Gothic figures over door of chapel, Amboise Castle, France, 12-4469
Goujon, Jean, French sculptor (c. 1520-c. 1566)
A nymph of the Seine, 13-4699
text, 13-4700
Goulden, Richard R., British sculptor
Memorial to Margaret Macdonald, 13-4858
 Greek figures from temple of Zeus at Olympia, 11-3987
 figures in marble, 11-3808
 frieze, 11-3808
 head, Ægina period, 11-3993
 horsemen from the Parthenon frieze, 3-1069
 See also Parthenon
 sculpture of 5th and 6th centuries, B.C., 3-1073
 statue of Apollo, 11-3993
 statue of Zeus, by Phidias, 7-2608
 statues of the time of Praxiteles, 12-4327
 warrior, 12-4465
 Grief, statue, by Frances Loring, 14-5079
 Group of happy children, by Donatello, 13-4610
 Groups of Greeks and Centaurs from the Parthenon, 12-4217
 Gudea, King of Babylon, fragment, 11-3879
 Gutenberg, John, statue, 9-3383

H

Hadrian, Roman Emperor, statue, 5-1865
 Hale, Nathan, statue, by MacMonnies, 11-3997
 Hammurabi, King, Stele of, 2-651
 Hapi, Nile god, statue, 11-3878
 Harmodius, Athenian hero, statue, 12-4334
Hartwell, Charles L., British sculptor (1873-)
Sylvia, 13-4853
 Head, Ægina period, 11-3993
 5,000 years old, 11-3879
 of a young boy, 12-4463
 perhaps of German captive, Roman, 12-4462
Hébert, Louis Philippe, Canadian sculptor (1850-1917)
statue of Paul de Chomedey, Sieur de Maison-neuve, 4-1482
text, 14-5075
 Hera, *see* Juno
 Herculeaneum, Bronze head from, 1-66
 Hercules (Heracles), head in the style of Scopas, 12-4336
 statue, 9-3083
 with Cacus, statue, 5-1742
 Hermes (Mercury), statue, by Praxiteles, 12-4335
 statue of the school of Praxiteles, 12-4335
 Herodotus, Greek head, 16-5747
 Homer, Greek head, 16-5907
 statue, 6-1983
 Horace, Roman head, 16-5907
 Horse, 5th century B.C., 3-1073
 Horseman, 14th century, 1-66
 from Parthenon frieze, 12-4217
 Horses of Diomed, by Gutzon Borglum, 8-2703
Houdon, Jean Antoine, French sculptor (1741-1828)
 Benjamin Franklin, portrait bust, 13-4703
 Louise Brogniart, 13-4705
 text, 13-4703, 4704
 Humboldt, Alexander von, statue, 2-596
 Hunting scene from the Sarcophagus of Alexander, 12-4466
 Hunting scenes, Assyrian, bas-reliefs in the British Museum, 11-3879-80
Huntington, Anna Hyatt, American sculptor (1876-)
 Jeanne d'Arc, 14-4935
 text, 14-4940
 Husband and wife, Egyptian group, 11-3878
 Hyatt, Anna, *see* Huntington, Anna Hyatt
 Hypnos, or Sleep, statue in the style of Praxiteles, 12-4336
 Hypostyle Hall, Karnak, columns, 14-5216

I

Incense-holder from Pitti Palace, 1-67
 Indian carvings, Aztec, 1-163
 Indian Hunter, by J. Q. A. Ward, 14-4933
 Ireland, antiquities, 8-2941-42
 Irving, Washington, tablet, Seville, 13-4627
 Ivory carvings, 6th and 10th centuries, 1-66

J

Jain temple, Mount Abu, details, 8-2832, 2833
 Udaipur, India, columns, 9-3096
 Joan of Arc, equestrian statue by Anna Hyatt Huntington, 14-4935
 by Emmanuel Frémiet, 16-5813
John, Sir W. Goscombe, English sculptor (1860-)
 Evelyn, 13-4853
 text, 13-4856
 John the Baptist, statue, by Majano, 13-4613
 with Madonna, in plaque, by Michelangelo, 13-4613
 with Madonna, early French, 13-4701
Jones, Capt. Adrian, English sculptor (1845-)
 Quadrige at Hyde Park Corner in London, 13-4857
 Juno (Hera), head, from Elgin marbles, 12-4219
 Jupiter (Zeus), statue, by Phidias, 7-2608

K

Kamehameha, statue, Hawaii, 10-3587
 Karnak, the great pylon, 14-5213
 Khafra, King, Egyptian sculpture, 3-817; 11-3877
 King, A., seated on his throne, French, 13th century, 13-4701
 Kutab Minar at Delhi, carving, 15-5478

KEY TO ILLUSTRATIONS (SCULPTURE)

L

- Laliberté, Alfred**, Canadian sculptor (1878-)
Le défricheur, statue, 14-5076
text, 14-5078
- Laocoön and his sons**, group, by Agesander, Polydorus and Athenodorus, 12-4462
- Leighton, Frederick, Lord**, English sculptor and painter (1830-1896)
The Slugard, 13-4855
text, 13-4856
- Lincoln, Abraham**, statue, by Daniel Chester French, 3-1038
statue, by St. Gaudens, 14-4932
- Lion**, Bronze, from Peking, 2-428
- frieze from palace of Darius, Susa**, 1-297
- hunt, Assyrian, bas-relief**, 11-3880
- Roman statue**, 4-1319
- Little Dear with the Tiny Black Swan**, by A. S. Calder, 14-4935
- Livy, Roman head**, 16-5907
- Lorenzo de Medici, figure from tomb**, by Michelangelo, 13-4615
- Tomb of**, by Michelangelo, 5-1743
- Loring, Frances**, Canadian sculptor
Grief, 14-5079
text, 14-5078-79
- Louise Brogniart**, portrait bust, by Houdon, 13-4705
- Lysippus**, Greek sculptor (4th century B.C.)
Apoxymenus, 12-4335
text, 12-4332

M

- Macdonald, Margaret**, Memorial to, by Goulden, 13-4858
- Mackennal, Sir Bertram**, English sculptor (1863-)
Bronze group, 13-4857
- Mackenzie, Robert Tait**, Canadian sculptor (1867-)
The Onslaught, 14-5075
The Supple Juggler, 14-5076
text, 14-5076-78
- MacMonnies, Frederick W.**, American sculptor (1863-)
Nathan Hale, 11-3997
text, 11-3996; 14-4938
- MacNeil, Hermon Atkins**, American sculptor (1866-)
Primitive chant, 19-6898
The Sun Vow, 14-4935
text, 14-4939
- Madonna and Child**, by Giovanni della Robbia, 13-4612
by Majano, 5-1745
early French sculptures, 13-4701
- Madonna with Christ and St. John**, by Michelangelo, 13-4613
- Magellan monument**, Chile, 1-90
- Magog, gigantic statue**, in the Guildhall, London, 14-5195
- Mahu and his wife**, Egyptian, 11-3877
- Maisonnette (Paul de Chomedey)**, statue, by Louis Philippe Hébert, 4-1482
- Majano, Benedetto da**, Italian sculptor and architect (1424-1478)
John the Baptist, 13-4613
Madonna and Child, 5-1745
text, 13-4607; 17-6298
- Man with a calf**, Greek, 5th or 6th century B.C., 3-1073
- Manship, Paul**, American sculptor (1886-)
Dancer and gazelles, 14-4935
text, 14-4940
- Marcus Aurelius**, bas-relief, 1-68
- equestrian statue**, 5-1866
- Margaret Macdonald memorial**, by Richard R. Goulden, 13-4858
- Marquette, Father Jacques**, portrait statue, 18-6633
- Marsyas, or the dancing faun**, statue, after Myron, 12-4334
- Mayflower covenant, Signing of the**, by Cyrus Dallin, 7-2525
- Medal from Syracuse**, 2,500 years old, 1-67
- Medea**, statue, by W. W. Story, 14-4935
- Medici, Lorenzo de**, by Michelangelo, 13-4615
- Tomb of**, by Michelangelo, 5-1743
- Medici tombs**, by Michelangelo, 5-1743
- Medusa, Mask of**, Greek, 6th century B.C., 3-1073

- Memorial to the first contingent of the A. E. F. at St. Nazaire**, by Mrs. Harry Payne Whitney, 17-6291
- Mercury taking flight**, statue, by da Bologna, 13-4609
- Michelangelo Buonarroti**, Italian sculptor and painter (1475-1564)
David, 1-65, 68; 5-1742
Fettered Slave, 13-4612
Lorenzo de Medici, 11-4064; 13-4615
Madonna with Christ and St. John, 13-4613
Medici tombs, 5-1743
Moses, 13-4613
The Pietà, 13-4613
Victory, 1-71
text, 3-830-31; 5-1735, 1740; 9-3069; 13-4607-08; 17-6310
- Mickiewicz statue**, Warsaw, 13-4687
- Miltiades**, Greek head, 13-4583
- Minerva**, statue in Vatican, 4-1201
See also Athena
- Ming Tombs**, China, marble arches, 15-5479
- Minute man**, statue, by Daniel Chester French, 4-1174
- Mithras sacrificing a bull**, 12-4461
- Monasterboice Cross**, County Louth, Ireland, 8-2942
- Monument to the navy and statue of Admiral Prat**, Valparaíso, Chile, 19-7050
- Moorish carvings**, 15-5465, 5467, 5469, 5473-80
- Moses**, statue, by Michelangelo, 13-4613
- Mosques, Carvings in**, 15-5474-78
- Motherhood**, group, by Bessie Potter Vonnoh, 14-4939
- Myron**, Greek sculptor (5th century B.C.)
Discobolus, 12-4219
Marsyas, or the dancing faun, after Myron, 12-4334
text, 12-4220

N

- Napoleon I**, monument at Ajaccio, 11-3815
- statuette*, by Gérôme, 1-71
- Nebo**, Assyrian god, head, 11-3880
- Neptune (Poseidon)**, statue, 11-3991
Temple of, at Paestum, 15-5340
- Nero, Roman Emperor**, portrait busts, 5-1862
his mother, portrait bust, 5-1862
his wife, portrait bust, 5-1862
- Nightingale**, Florence, statue, Derby, 16-5703
statue in London; panels from, by A. G. Walker, 16-5705
- Niké** (Greek goddess of victory) of Delos, statue, 11-3991
of Samothrace, statue, 12-4336
See also Victory
- Nile gods**, Egyptian relief, 11-3873
- Niobe shields her youngest daughter**, group, 12-4336
- Notre Dame cathedral**, Paris, doorway, 12-4469
- Nymph of the Schuylkill**, statue, by William Rush, 14-4935
- Nymph of the Seine**, bas-relief, by Jean Goujon, 13-4699

O

- Officer**, Assyrian head in relief, 11-3879
- Old Pioneer**, statue, by Aurèle Suzor-Coté, 14-5078
- Olympia (reconstructed)**, 15-5340
figures from temple of Zeus, 11-3987
statue of Zeus, by Phidias, 7-2608
- Onslaught, The**, group, by R. Tait Mackenzie, 14-5075
- Orpheus and Eurydice**, group, 12-4466
- Ovid**, Roman head, 16-5907

P

- Pæonius**, Greek sculptor (5th century B.C.)
Figure from Temple of Zeus, Olympia, 3-1073
- Panel of pulpit at Pisa**, 13-4610
- Paris with the Apple**, statue, 12-4459
- Parthenon, Athens**, Figures from the, 3-1069, 1079; 12-4215, 4217
- Peace**, statue in bronze, by Edward O. Ford, 13-4855
- Peasant Woman**, head, by Dalou, 13-4705
- Pericles**, Greek bust, 2-701
- Perseus arming**, statue, by Gilbert, 13-4855
- Pestalozzi and two pupils**, group, 14-5253

KEY TO ILLUSTRATIONS (SCULPTURE)

Phidias, Greek sculptor (born between 500 and 490 B.C.)
 portrait bust of, 2-701
 Athena, statue, 3-1079; head, 12-4219
 Jupiter, statue, 7-2608
 Parthenon, Figures from the, 3-1069, 1079; 12-4215, 4217
text, 2-706; 3-1080; 8-3009; 12-4220-22, 4327
 Philip of Macedon, Greek bust, 2-701
 Pietà, The, group, by Michelangelo, 13-4613
Pilon, Germain, French sculptor (1535-1590)
 Virgin, Child and St. John, attributed to Pilon, 13-4701
 Pisa cathedral, panel of pulpit, 13-4610
Pisano, Giovanni, Italian sculptor (c. 1250-1330)
 Panels from pulpit, 13-4610
 Pulpit, Pisa cathedral, 13-4612
text, 4-1459; 13-4604
 Plato, Bronze head of, 16-5914
 Pliny the Elder, Roman head, 16-5907
 Poe, Edgar Allan, memorial, 5-1898
Polyclitus, Greek sculptor (5th century B.C.)
 Amazon; Diadumenos; Doryphorus; all three of the school of Polyclitus, 12-4334
text, 12-4215, 4218
Pomeroy, F. W., English sculptor (1857-1924)
 The Potter, 13-4853
 Poseidon (Neptune), statue, 11-3991
 Temple of, at Pæstum, 15-5340
 Potter, The, statue, by F. W. Pomeroy, 13-4853
 Pounds, John, of Portsmouth, group, 17-6140
 Prat, Admiral, statue, Valparaiso, Chile, 19-7050
Praxiteles, Greek sculptor (c. 380 B.C.)
 Aphrodite of Cnidus, head, 12-4329
 Hermes, 12-4335
 Young faun, 12-4335
text, 12-4328-30
Praxiteles, School of Greek sculpture
 Hermes, 12-4335
 Primitive chant, statue, by H. A. MacNeil, 19-6898
 Prophet, 12th century, French, 13-4701
 Pulpit, by Pisano, 13-4612

Q

Quadrige in gardens of Versailles, 11-3826
 model for Australia House, London, by Sir Bertram Mackennel, 13-4857
 on Brandenburg Gate, Berlin, 12-4179
 on Little Arc de Triomphe, Paris, 11-3827
 Peace, by Inigo Jones, in London, 13-4857

R

Rameses the Great, bust, 11-3878
 statue, at Abu-Simbel, 14-5215
Robbia, Andrea della, Italian sculptor (1437-c. 1528)
 Bambino, 13-4612
 The Visitation, 13-4612
text, 13-4606-07; 20-7461
Robbia, Giovanni della, Italian sculptor (c. 1469-1529)
 Madonna and Child, colored terra cotta, 13-4612
text, 13-4606-07
Robbia, Luca della, Italian sculptor (c. 1399-1482)
 portrait of, 5-1735
 Angels, 5-1748; 13-4615
 Choristers from Singing Galleries, 13-4611
 Singing Gallery, 13-4616
text, 5-1740; 13-4606-07
 Rock tombs, Persepolis, 3-915
Rodin, Auguste, French sculptor (1840-1917)
 The Age of Bronze, 13-4705
 The Burghers of Calais, 13-4704
 The Creation of Man, 13-4705
 The Thinker, 11-4065
text, 13-4706
 Roman antiquities, 4-1318-19
 Romulus and Remus with the wolf, 4-1208
Rush, William, American sculptor
 Nymph of the Schuylkill, 14-4935
text, 14-4933

S

St. Columba's Cross, Kells, Ireland, 8-2942
Saint Gaudens, Augustus, American sculptor (1848-1907)
 Lincoln statue in Chicago, 14-4932
 Robert Louis Stevenson, bas-relief, 11-3899
text, 14-4936-37

St. George, statue, by Donatello, 13-4613
 St. Mark's, Venice, Doors of, 4-1467-68; 16-5722
 Sallust, Roman head, 16-5907
 Sarcophagus of Alexander, 12-4466
 Sarcophagus of the weeping women, 12-4466
 Sarcophagus, Roman, 4-1319
 Saxon antiquities, 4-1436
Scudder, Janet, American sculptor (1873-)
 Frog Fountain, 14-4935
text, 14-4940
 Sculptured coffin lid from Kells, Ireland, 8-2942
 Sea-gull monument, Salt Lake City, 17-6288
 Seti I, Egyptian bas-relief, 11-3877
 Seti II, Egyptian head, 11-3877
 Seven wonders of the old world, 7-2605-07
 Sheik El Beled, Egyptian statue, 11-3877
 Shrine of St. Sebald, Nuremberg, Germany, by Peter Vischer 13-4702
 of Snake goddess, from Crete, 11-3989
 of the god Osiris, 11-3878
 Shwee Zeegong temple, Burma; carved doorway, 15-5479
 Signing the Mayflower Covenant, by Cyrus Dallin, 7-2525
 Silver medal, 17th century, 1-66
 Singing Gallery, Florence, Italy, by Donatello, 5-1745; 13-4616
 panels, 13-4611-13
 Singing Gallery, Florence, Italy, by Luca della Robbia, 13-4616
 panels, 13-4611
 Sluggard, The, statue, by Leighton, 13-4855
Sluter, Claus, Flemish sculptor (1389-1406)
 The Well of Moses, 13-4702
text, 13-4700
 Sobieski, John, statue, 13-4690
 Socrates, head, 16-5914
 in group, by Harry Bates, 16-5917
 Solon, bust, 2-701
 Sophocles, Greek head, 16-5747
 South African Memorial, Figure for, by Walter S. Allward, 14-5077
 Spearman, Roman, bas-relief, 4-1318
 Sphinxes
 at Gizeh, 1-352; 3-819
 Greek, 6th century B.C., 3-1073
 inscribed with name of Thothmes III, 11-3878
 Spinario, the boy with a thorn in his foot, Greek statue, 12-4329
 Statues, Gigantic, near Thebes, about 1400 B.C., 3-819
 Stevenson, Robert Louis, bas-relief, by Saint Gaudens, 11-3899
 Stone above an Athenian tomb, 12-4336
 figures, Roman, 4-1318-19
 tablet, bas-relief, 4-1318
Story, William W., American sculptor (1819-1895)
 Medea, 14-4935
text, 14-4934
 Study for La Danse, head, by Carpeaux, 13-4705
 Sun Vow, The, group, by Hermon A. MacNeil, 14-4935
 Supple Juggler, The, statue, by R. Tait Mackenzie, 14-5076
Suzor-Coté, Aurèle de Foy, Canadian painter and sculptor (1870-)
 The Old Pioneer, 14-5078
text, 14-5078
 Sylvia, head, by C. L. Hartwell, 13-4853

T

Tacitus, Roman head, 16-5907
Taft, Lorado, American sculptor (1860-)
 Statue of Black Hawk, 15-5281
text, 14-4940; 19-7124
 Tanagra, Figurines from, 3-1071
 Temple of Diana at Ephesus, figures from a column, 12-4466
 of Luxor, columns, 14-5214
 of Zeus, Olympia, figures, 3-1073; 11-3987
 Terence, Roman head, 16-5907
 Thales, Greek head, 1-201
 Thebes, Gigantic statues near, 1400 B.C., 3-819
 Themistocles, Greek bust, 3-1069
 Greek head, 13-4583
 Theseus and the centaur Bianor, group, by Barye, 13-4705
 Thinker, The, Head of, by Rodin, 11-4065
Thornycroft, William Hamo, English sculptor (1850-)
 Boadicea, 13-4585
text, 13-4856

KEY TO ILLUSTRATIONS (SCULPTURE AND ARCHITECTURE)

Tothmes III, Egyptian bust, 3-807
 Inscription on Sphinx, 11-3878
 Thucydides, Greek head, 16-5747
 Thurloe, John, portrait medal, 1-67
 Tiberius, Roman Emperor, statue, 5-1860
 Titus Aurelius Antoninus, *see* Antoninus Pius
 Titus, Roman Emperor, statue, 5-1864
 Tomb of Death, by Bartholomé, 13-4705
 of King Mausolus of Caria, Halicarnassus;
 reconstruction, 7-2605
 of Tutankhamen, treasures from, 3-frontis.
 Tombs, Rock, at Persepolis, 3-915
 Trajan, Roman Emperor, column in Rome,
 4-1206
 monument in the Forum, 4-1205
 statue, 5-1864
 triumphal arch, Benevento, 4-1203
 Tutankhamen, figure from his tomb, 3-frontis.
 Two Natures, group, by George Grey Barnard,
 14-4935

V

Vase, Roman, 4-1318
 with relief carvings, from Crete, 11-3989
 Vendome column, Paris, 11-3828
 Venus of Milo, 12-4333
 Venus (Aphrodite), head, by Praxiteles, 12-4329
 in bronze, 12-4336
 Verrazano, Giovanni, statue in Battery Park,
 New York, 1-249
 Verrocchio, Andrea del, Italian sculptor (1435-
 1488)
 Colleoni, equestrian statue, 4-1468; 13-4614
 David, 13-4614
 text, 4-1459-60; 13-4605
 Vespasian, Roman Emperor, portrait busts,
 5-1863
 Victory (Niké), of Samothrace, statue, 12-4336
 from Temple of Zeus, 11-3993
 of Delos, 11-3991
 Statues of, by Michelangelo, 1-71
 Virgil, Roman head, 16-5907
 Virgin and Child, The, 14th century, 13-4701
 Virgin, The, Child and St. John, attributed to
 Pilon, 13-4701
 Virgin, The, St. Anne and St. Joachim, 15th
 century, 13-4855
See also Madonna
 Vischer, Peter, German sculptor (1460-1529)
 Shrine of St. Sebald, 13-4702
 text, 13-4700
 Visitation, The, group, by Andrea della Robbia,
 13-4612

Vonnoh, Bessie Potter, American sculptor
 (1872-)
 Motherhood, 14-4939
 text, 14-4940

W

Walker, Arthur G., English sculptor (1872-)
 Florence Nightingale statue, London; panels,
 16-5705
 Ward, John Quincy Adams, American sculptor
 (1839-1919)
 The Indian Hunter, 14-4933
 text, 14-4936
 Warrior, Greek statue, restored, 3-1073
 Roman, bas-relief, 4-1318
 Wounded, statue in style of Pergamene school,
 12-4464
 Warriors from Temple of Aphaia at Ægina,
 restored by Thorwaldsen, 3-1071
 Weigls, Robert, sculptor
 Ludwig van Beethoven, 19-7076
 Well of Moses, The, by Claus Sluter, 13-4702
 Whitney, Mrs. Harry Payne, American sculptor
 Memorial to the first contingent of the A. E. F.
 at St. Nazaire, 17-6291
 Winged bull from the palace of Sargon, bas-
 relief, 11-3879
 Winged lion from the palace of Ashur-nasir-
 pal, 11-3879
 Winged Victory, *see* Victory
 Women leading a bull to sacrifice, Roman bas-
 relief, 12-4461
 Women playing dice, from Tanagra—in terra
 cotta, 3-1071
 Wooden bust, 16th century, 1-70
 Wylie, Florence, Canadian sculptor
 Girl with Grapes, 14-5079
 text, 14-5078-79

X

Xanthos, figures from tomb in, 11-3991

Y

Young Athenian, bronze head, 12-4336
 Young boy's head, 12-4463
 Young faun, statue, by Praxiteles, 12-4335

Z

Zeno, bust, 2-701
 Zoroaster, statue, 9-3085

ARCHITECTURE (Ralph Adams Cram)

Ancient—Old World

Assyrian

Calah, Palace at (reconst.), 2-646
 Nineveh, Interior of King's palace (reconst.),
 1-296
 Nineveh, Palace of Sennacherib (reconst.),
 14-5207

Babylonian

Babylon, Ruins of (Nebuchadnezzar's period),
 2-649
 Bel, Temple of (reconst.), 2-646
 Hanging Gardens (reconst.), 2-659; 7-2608

Egyptian

Abu-Simbel, Rock temple at, 14-5214
 (statues of Rameses at entrance), 14-5215
 Amen, Rock temple of, Der-el-Bahari, 14-5216
 Cheops, Pyramid of, 7-2606
 Dendera, Temple of (reliefs on wall), 14-5206
 (columns), 14-5206
 Edfu, Temple of (great pylon), 14-5216
 Gizeh, Pyramids at, 3-811; 14-5214
 Isis, Temple of, Philae, 8-3010; 14-5213
 (double pylon), 14-5215
 (forecourt), 14-5215
 Karnak, Temple at (great pylon), 14-5213
 (columns of Hypostyle Hall), 14-5216
 Luxor, Temple at, 14-5214
 (columns), 14-5214
 Memphis, Pyramid near, 8-frontis.
 Pharos, The, great lighthouse of Alexandria,
 7-2608

Ancient—Old World (continued)

Rock temple, 8-3010
 Sakhara, Step pyramid at, 14-5214
 Tothmes III, Obelisk of, New York City,
 17-6216

Pelagic

Knossos, Crete, Minoan palace at (interior),
 14-5215

Mycenae, Greece, Gate of Lions at, 8-3010;
 11-3991

Treasury of Atreus at, 14-5215

Persian

Persepolis, Group of palaces at (reconst.),
 14-5206

Hall of a Hundred Columns, 14-5206

Hypostyle Hall of Xerxes, 14-5206

Ancient—New World

Mayan

Aztec ruins, Mitla, 19-7137
 Maya Indian pyramid, "The Castle," Chichen
 Itza, 8-frontis.

North American

Cliff Dwellings, Cholla Cañon, Ariz., 1-163
 Mesa Verde National Park, Colo., 7-2286;
 18-6427

Indian village, Ruins of, Casa Grande, Ariz.,
 18-6427

Pueblo Indians, Adobe dwellings of, Taos,
 N. Mex., 8-frontis.

South American Indian

Inca stonework, Cuzco, Peru, 19-6865

KEY TO ILLUSTRATIONS (ARCHITECTURE)

Byzantine

Bulgarian

Rilo Monastery, 14-4925

Greek

Daphne, Church and Monastery, 16-5723

Italian

Florence, Minelli Palace (stairway), 4-1468
Padua, Church of San Antonio, 17-6170
Ravenna, Church of St. Apollinare Nuovo, 16-5722

Venice, St. Mark's, 4-1466; 8-3010; 16-5721 (doorway), 4-1467, 1468; 16-5722

Russian

Leningrad, Cathedral of the Resurrection, 16-5722

Moscow, Buildings of the Kremlin, 16-5847
Church of St. Basil (Vasili), 16-5722, 5857

Turkish

Constantinople, St. Irene (basilica), 16-5715
Santa Sophia, 8-3010; 13-4807; 16-5714

Byzantine—Modern

Rumanian

Basilica in Bucharest, 14-4931

Church of the Three Saints, Jassy, 14-4931

Russian

Riga, Greek Cathedral 16-5861

Classical

Greek

Acropolis, The, Athens, 2-705; 14-4917
Aphaia, Temple of, Ægina, 15-5354
Apollo, Columns of the temple of, Corinth, 15-5354

Athenian Monument, 8-3010

Colossus of Rhodes (reconst.), 7-2607

Concord, Temple of, Girgenti, Sicily, 15-5352

Diana, Temple of, Ephesus, 7-2608; 8-3010

Erechtheum, The, 3-1068

(north porch), 15-5350

Greek Orders, 15-5343

Lysicrates, Choric monument of, Athens, 15-5350

Mausoleum at Halicarnassus, The, tomb of King Mausolus of Caria (reconst.), 7-2605

Neptune, Temple of, Sunium, 15-5354

Olympia, Buildings at (reconst.), 15-5340

Olympian Zeus, Temple of, Athens, 15-5350

Parthenon, The, Athens, 8-3010; 15-5349

Painting of, 10-3458

(Doric columns), 15-5352

(reconst.), 3-1079

Propylæa, The, Acropolis, Athens, 15-5349

Segesta, Sicily, Temple at, 15-5354

Sparta, gymnasium (reconst.), 3-1075

Theseum, The, Athens, 15-5354

Tower of the Winds, Athens, 15-5354

Wingless Victory, Temple of the, Acropolis, Athens, 15-5350

Roman

Appian Way (reconst.), 15-5340

Arena at Arles, Provence, 15-5355, 5356

Bettii, Courtyard of House of, Pompeii, 15-5356

Caracalla, Fragment of Baths of, 4-1204

Castor and Pollux, Temple of, Rome, 15-5351

Cecilia Metella, Tomb of, 4-1205

Colosseum, El Djén, Tunis, 15-5353

Colosseum, Rome, 4-1207; 8-3010; 9-3065

(interior), 15-5353

Constantine, Arch of, Rome, 4-1203; 8-3010
Church of time of, Rome, 4-1204

Forum, Rome, 4-1202

Ruins of temple in, 4-1204

Hadrian, Arch of, Athens, 14-4920

Tomb of (now Fortress of Sant' Angelo), Rome, 4-1205; 13-4565

Janus, Arch of, Rome, 4-1205

Julius Caesar, Tower built by, Provence, 1-72

Jupiter, Temple of, Pompeii, 15-5340

Marcus Aurelius, Column of, Rome, 15-5351

Nîmes, Temple at, 8-3010

Orange, Arch at, 1-72

Pæstum, Temple of Poseidon at, 15-5350 (reconst.), 15-5340

Palatine Hill, Ruins on, Rome, 4-1204

Pantheon, Rome, 4-1197, 1206; 8-3010

Phocas, Column of, Rome, 15-5355

Pola, Amphitheatre at, 15-5356

Septimius Severus, Arch of, Rome, 15-5356

Theatre, Arles, Provence, 15-5355

Titus, Arch of, Rome, 4-1203

Classical, Roman (continued)

Tivoli, Little temple at, 15-5351

Trajan, Monument to, Rome, 4-1205

Trajan's Triumphal Arch, Benevento, 4-1203

Column, Rome, 4-1206

Vespasian, Temple of (columns), Rome, 15-5355

Vesta, Temple of, Rome, 4-1205

Vestal Virgins, Temple of the, Rome, 4-1207

Classical—Greek Revival

United States

Academic buildings

Iowa, University of (general view), 12-4315

Virginia, University of (Library and general view), 12-4314

Church, Lexington, Mass., 18-6834

Cleveland, Grover, Home of, Princeton, N. J., 19-7195

Doughoregan Manor, Ellicott City, Md., 12-4153

Hamilton, Alexander, Home of, New York City, 10-3496

Fountains Abbey, Yorkshire, 5-1567

Jackson, Andrew, Home of, Nashville, Tenn., 11-3941

Lee Mansion, Arlington, Va., 14-4893

Monticello, home of Thomas Jefferson, Charlottesville, Va., 18-6839

Pringle House, Charleston, S. C., 14-4899

Virginia State Capitol, Richmond, 7-2441

"White House of the Confederacy," Richmond, Va., 14-4893

Wilson, Woodrow, Birthplace of, Staunton, Va., 19-7195

Colonial

United States

Bulfinch State House, Boston, Mass., 18-6685

Cape House, Topsfield, Mass., 3-967; 18-6685

Carpenters' Hall, Philadelphia, Pa., 18-6833

Delaware State Capitol, Dover, 11-3773

Emerson House, Concord, Mass., 13-4631

Faneuil Hall, Boston, Mass., 18-6832

First Church, Bennington, Vt., 18-6685

Fraunces' Tavern, New York City, 18-6832

Hart House, Ipswich, Mass. (interior), 2-547

Harvard College, old and new buildings, 12-4306

Independence Hall, Philadelphia, Pa. (exterior), 18-6830; (interior), 18-6825, 6831

John Alden House, Duxbury, Mass., 2-547

Johns Hopkins University, Engineering Building, 12-4314

Langdon (Gov. John) House, Portsmouth, N. H., 12-4154

Mount Vernon, home of George Washington, Virginia, 11-3947; 18-6839

New England doorways, 12-4154

Old Manse, Concord, Mass., 13-4631

Old North Church, Boston, Mass. (exterior), 18-6830

(interior), 18-6685

Old State House, Boston, Mass., 18-6832

Penn. William, Home of, Philadelphia, Pa., 18-6833

Revere, Paul, Home of, Boston, Mass., 18-6832

Ridgely House, Dover, Del., 12-4153

St. John's Church, Richmond, Va., 18-6830

St. Philip's Church, Charleston, S. C., 18-6685

Shaw Mansion, New London, Conn., 12-4154

Smith College, Emerson House, 12-4313

Stenton Mansion, Philadelphia, Pa., 12-4153

Wayside Inn, South Sudbury, Mass., 12-4154

Westover, Home of Col. William Byrd, Charles City County, Va., 13-6685

Williamsburg, Va., Church at, 5-1701

Gothic

Austrian

Budapest, Parliament House, 17-6191

Vienna, St. Stephen's Cathedral, 17-6171

Belgian

Antwerp Cathedral, 17-6167

(nave and choir), 17-6157

Audenarde Town Hall, 15-5499

Bruges, Belfry at, 15-5506; 17-6166

House of the Francs, 15-5503

Town Hall, 8-3011; 15-5506

Brussels, St. Gudule's Church, 15-5505

Town Hall, 15-5505

KEY TO ILLUSTRATIONS (ARCHITECTURE)

Gothic, Belgian (continued)

- Courtrai Town Hall, 17-6171
- Ghent, Quai aux Herbes, 15-5499
- Towers at, 15-5506
- Louvain Town Hall, 15-5503
- Malines Cathedral (tower), 15-5504

Czechoslovakian

- Prague, Cathedral of St. Vitus, 17-6343
- Old church at, 17-6343

Dutch

- Delft, Church at, 15-5565
- Haarlem, The Great Church at, 17-6172
- (choir and organ), 17-6157
- Middelburg Town Hall, 15-5565
- Utrecht, Cathedral Tower at, 15-5565

English

- Bristol Cathedral (entrance to chapter house), 16-5965
- (west front), 16-5976
- Canterbury Cathedral, 16-5973
- (south porch and west door), 16-5965
- Durham Cathedral (north aisle), 16-5965
- Eton College (Quadrangle), 16-6493
- Exeter Cathedral (west front), 16-5975
- Gloucester Cathedral, 16-5976
- (south porch), 16-5974
- Hereford Cathedral, 16-5974
- House at Ightham, Kent, 7-2304
- Norwich, Gateway at, 1-72
- Peterborough Cathedral (west front), 16-5975
- Rievaulx Abbey, Yorkshire, 7-2303
- Rochester Cathedral, 16-5974
- (nave), 5-1567
- St. John's College, Cambridge, 18-6489
- St. Martin's Cross and ruins, Iona Island, 4-1437
- Salisbury Cathedral, 1-72; 16-5976
- Stoke Poges Church, 9-3337
- Temple Church, London, 16-5976
- (pulpit and organ), 16-5965
- Tewkesbury Abbey, 16-5975
- Warwick Castle, 18-6488
- Wells Cathedral, 16-5963
- Westminster Abbey, 12-4352
- Henry VII Chapel, 8-3011; 12-4352
- Windsor Castle, 18-6488
- St. George's Chapel, 1-72
- York Minster, 8-3011; 16-5973

French

- Aix-la-Chapelle Cathedral, 16-5723
- Albi Cathedral, 17-6172
- Amboise Castle (door of chapel), 12-4469
- Amiens Cathedral, 17-6167
- (apse), 17-6172
- Avignon, Palace of the Popes, 10-3574; 18-6499
- Bordeaux, St. André Cathedral, 10-3575
- Carcassonne, Old cathedral at, 17-6157
- Chartres Cathedral (ambulatory), 17-6157
- (north side and west front), 17-6169
- (south entrance), 17-6157
- Château de Josselin, 18-6497
- Pierrefonds, 18-6497
- Laon, Notre Dame Cathedral, 17-6167
- Le Mans, St. Julien Cathedral, 17-6168
- Noyon Cathedral, 17-6171, 6172
- Paris, Cluny Museum, 18-6499
- Notre Dame de, 1-72; 10-3437
- (doorway), 12-4469
- Sainte Chapelle, 17-6170
- (windows), 17-6157
- Quimper Cathedral, Brittany, 10-3438
- Rheims Cathedral, 8-3011; 17-6166
- Rouen Cathedral, 17-6165
- Church of St. Ouen, 10-3574
- Senlis Cathedral, 17-6171
- Strassburg Cathedral, 17-6166
- Old buildings at, 10-3438, 3575

German

- Berlin, Museum of the Mark, 12-4177
- Bingen, Mouse Tower, 12-4165
- Bremen Cathedral, 12-4180
- Breslau, Old Town Hall, 12-4176
- Castle at Königsberg, 12-4179
- Marienburg, 12-4178
- see also Rheinsteint
- Cologne Cathedral, 17-6170
- from across the Rhine, 12-4173
- Hamburg, St. Nicholas Church, 12-4180
- Ratisbon Cathedral, 8-3011; 17-6170
- Rheinsteint Castle, 12-4163
- Stuttgart, Old Protestant church at, 12-4178
- Ulm Cathedral, 17-6167

Gothic (continued)

Irish

- Dublin Castle, 8-2929
- Quin Abbey (ruins), 8-2942

Italian

- Assisi, Church of San Francesco at, 17-6170
- Florence Cathedral, 8-3011
- Giotto's Tower, 5-1746, 1747
- (window), 5-1744
- Santa Croce Church, 5-1747
- (window), 1-66
- Santa Maria Novella (interior), 5-1745
- Milan Cathedral, 8-3011; 10-3467
- (façade), 17-6169
- Orvieto Cathedral, 17-6172
- Rome, Santa Maria Sopra Minerva Church, 17-6163
- Siena Cathedral, 17-6170
- (detail), 17-6157
- Venice, Doge's Palace, 4-1465; 17-6303
- (arches), 17-6308
- (doorway), 4-1468

Norwegian

- Trondhjem Cathedral, 15-5299

Polish

- Tower of St. Florian, Cracow, 13-4689

Portuguese

- Batalha, Dominican monastery at, 14-5190
- Evora, Ermida de São Braz, 14-5191

Scotch

- Tolbooth Prison, Edinburgh, 10-3465

Spanish

- Burgos Cathedral, 8-3011; 17-6166
- (lantern), 17-6171
- Segovia, Alcazar at, 14-5045
- Seville Cathedral, 17-6172
- (Gate of the King), 17-6157
- Valencia Cathedral, 14-5049

Swedish

- Kalmar, Mediæval castle at, 15-5306

Gothic—Modern

Austrian

- Vienna, Votive Church, 17-6195

Canadian

- Ottawa, National Gallery of Canada, 5-1832
- Parliament Buildings (old), 5-1835
- (new), 5-1835
- (new, interior), 5-1838, 1839

Dutch

- Amsterdam, The Rijks, or National Museum, 15-5563

English

- Liverpool Cathedral, 18-6502
- London, Houses of Parliament, 8-3011; 12-4359
- Law Courts in the Strand, 12-4355

Irish

- Cathedral at Queenstown, 8-2933

Polish

- Warsaw, Calvinist Church, 13-4683
- St. Florian's Church, 13-4683
- St. John's Cathedral, 13-4687

United States

- Academic buildings
- Bryn Mawr College, Rockefeller Hall, 12-4313
- Chicago, University of (general view), 19-7108, 7109
- (Old Chapel tower), 19-7123
- Mount Holyoke College, Mary Lyon Hall, 14-5266
- New York, College of the City of, Hudson Gate, 12-4312
- Princeton University, Holder Hall, 12-4311
- Proctor Hall, 18-6687
- United States Military Academy, West Point, N. Y., Academic Building, 18-6703
- Chapel, 18-6710
- (general view), 18-6704
- Post Headquarters, 18-6690
- Vassar College, Thompson Memorial Library, 12-4313
- Washington, University of (general view), 12-4317
- Wellesley College, Founders Hall, 12-4313
- Yale University, Harkness Quadrangle, 18-6687
- Peabody Museum, 18-6688
- Philips Hall, 12-4309
- Chicago, H. C. Potter Palmer residence, 19-7110
- Water Tower, 19-7115

KEY TO ILLUSTRATIONS (ARCHITECTURE)

Gothic—Modern, United States (continued)

- Glen Cove, Long Island, N. Y., Pratt House, 18-6688
Hartford, Conn., State Capitol, 18-6683
New York City, Cathedral of St. John the Divine, 18-6686
St. Patrick's Cathedral, 18-6686
St. Thomas Church, 18-6686
St. Vincent Ferrer Church (interior), 18-6686
Trinity Church, 17-6209
Washington, D. C., Cathedral of St. Peter and St. Paul, 5-1543

Hispano-Moorish—Modern

- Seville, Spain, Washington Irving Memorial Building, 13-4627

Lombard

- Padua, Italy, Church of San Antonio, 17-6170

Modernist

- United States*
Ann Arbor, Mich., Hill Auditorium, University of Michigan, 12-4315
Lincoln, Neb., State Capitol, 18-6687

Mohammedan

- Indian*
Agra, Pearl Mosque, 9-3096
(near), Taj Mahal, 8-2701, 2835; 15-5477
Ahmedabad, Mosque of Ranees Sepree, 9-3096
Akyab, Burma, Mosque at, 15-5478
Benares, Mosque of Aurungzebe, 8-2835
Delhi, Shah Jehan's palace at, 15-5477
Kazimain, Mosque at, 18-6671
Singapore, Mosque at, 9-3183
Palestine
Jerusalem, Mosque of Omar, 15-5476
(arches in inclosure), 15-5476
(mosaics), 15-5476

Persian

- Dalmatia, Diocletian's palace in, 5-1866
Damghan, Minar at, 3-921
Hamadan, Tomb of Queen Esther at, 3-919
Isfahan, Bridge at, 3-911
Grand Mosque at, 3-919
Kerman, City gate, 3-919
Kum, Mosque at (Fatima's Shrine), 3-921
Shiraz, Entrance to Governor's house, 3-921
Shah Chiragh Mosque, 3-909
Teheran, City gates, 3-920

Turkish

- Mohammed the Conqueror, Mosque of, 13-4805
National Museum, Constantinople, 13-4809
Seljuk Mosque, Asia Minor, 13-4809
Shah Zade, Mosque of, Constantinople, 9-3095
Suleiman, Mosque of, 13-4805
Sultan Ahmed, Mosque of, 13-4805
Sultan Bayazid II, Mosque of, 13-4805
Sultan Valideh, Mosque of, 13-4805

Moorish

Hejaz

- Mecca, Sacred Shrine at, Kaaba, 18-6673
Medina, Minarets at, 18-6673

Spanish

- Cordoba, Great Mosque (columns and arches), 15-5467, 5474
(interior carving), 15-5477
Granada, Alhambra, Court of the Fishpool, 15-5465, 5476
Court of the Lions, 15-5467, 5473
(arches), 15-5474
Fountain of Lions, 15-5465
(hall), 15-5469
Hall of the Ambassadors (window), 15-5467
Hall of the Two Sisters, 15-5474
(king's sleeping apartment), 15-5475
(porch in court), 15-5469
summer palace of Moorish kings (porch), 15-5475
Seville, Alcazar, 14-5047
(decorated arches), 15-5465
(entrance to king's sleeping apartment), 15-5473
Hall of the Ambassadors, 15-5475, 5477
Giralda Tower, 15-5469
Pilate's House, 15-5476

Syrian

- Damascus, Cloisters of Great Mosque, 16-5724

Moorish—Modern

Mexican

- Mexico City, Post Office building at, 19-7139

Norman

English

- Canterbury Cathedral (columns and staircase), 5-1567
(crypt), 16-5965
Durham Cathedral, Galilee Chapel, 16-5965
Ely Cathedral (details), 5-1567
Eridge Castle, Sussex, 7-2297
Groombridge, Sussex, Moated house at, 7-2297
Iffley Church, 8-3010
Kilpeck, Gate at, 5-1567
Patricbourne Church (doorway), 5-1567
Tower of London, 12-4355
(chapel), 5-1567
Windsor Castle, 18-6488
Worth Church, Kent (interior), 5-1567

Irish

- Boyle Abbey, Roscommon (ruins), 8-2942
King John's Castle near Limerick, 8-2937
Mellifont Abbey, Baptistry of (ruins), 8-2942

Norse

Norway

- Timber church at Gol, 15-5299

Oriental

Chinese

- Canton, Great Pagoda at, 2-425
Honam Pagoda near, 9-3094
Great Wall of China, 2-421, 426, 435
Lhasa, Tibet, Home of the Dalai Lama at, 2-433; 18-6587
Ming Tombs (marble arches), 15-5479
Peking, Hall of Classics, 2-431
Porcelain Tower, old summer palace at, 2-425
Temple at (triple arch), 15-5479
Temple of Heaven, 9-3095
Umbrella Pagoda, 15-5479
Walls of, 2-431
Shanghai, Lung Hua (or Loong Wah), Pagoda at, 2-425; 15-5479

Indian or Hindu

- Ahmedabad, Temple at (ruins), 15-5480
Tomb of Huthi Singh near, 8-2832
Amritsar, Golden Temple at, 8-2833
Benares, Gosain Temple in (interior), 9-3096
Calcutta, Jain temple in, 9-3096
Columbo, Ceylon, Temple at, 9-3185
Delhi, Praying Tower at, 8-2835
Kutab Minar (detail), 15-5478
Ellora, Rock temple at, 15-5478
Fort Agra, Zenana in, 15-5480
Gwalior, Jama Masjid at, 15-5478
Java, Boro Budur, Buddhist temple in, 9-3096
Kado, Burma, Modern temple at, 9-3094
Kapurthala, Temples at, 9-3094
Lucknow, Tomb of Zenab Aliya in, 15-5480
Madura, Shrine on Lake of Golden Lilies in, 8-2701
Temple at, 9-3093
(corridor), 8-2833

- Mount Abu, Jain temple on, 9-3095
(ceiling), 8-2832
(pillars), 8-2833

- Nargacoli, Temple of, 9-3095
Patna, Buddh-Gaya Temple near, 15-5478
Penang, Temple in, 9-3183
Rangoon, Shwe Dagon Pagoda, 9-3096
Sanchi Tope, 15-5478
Schwee Zeegong Temple, Burma (doorway), 15-5479
Temple interior, 1-72
Udaipur, Temple at, 8-2835
Jain temple (decorated columns), 9-3096
Umnabad, Temple at, 8-2835

Japanese

- Ikagame Temple, 2-569
Minohu Temple, 9-3094
Nagoya Temple, 8-frontis,
Nikko, Gate of the Two Kings, 2-567
Shinto temple (entrance), 2-569

Siamese

- Temple of Wat Cheng, 9-3094

Oriental—Modern

Indian

- Rashmanie Temple in Calcutta, 15-5469

KEY TO ILLUSTRATIONS (ARCHITECTURE)

Renaissance

Austrian

Vienna, The Charles Church, 17-6195

Belgian

Antwerp Town Hall, 8-3011

English

Burghley House, 18-6488
Greenwich Hospital, 8-3011
Hardwick Hall, Derbyshire, 18-6493
Hatfield House, 8-3011
Waddesdon Manor, Buckinghamshire, 18-6493
Wollaton Hall, 8-3011
Wren's Orangery, Kensington Gardens, 18-6493

French

Arras Town Hall, 18-6501
Avignon Cathedral (interior), 16-5723
Château of Blois, 18-6499
(staircase), 18-6499
Chambord, 8-3011
Chenonceaux, 18-6501
Versailles, 18-6501
(interior), 18-6463
Paris, Bourse, 16-5933
Church of the Sorbonne, 18-6711
Dome of the Invalides, 6-2206; 11-3826
Louvre, 11-3826
Madeleine Church, 11-3828
Panthéon, 8-3011; 11-3827

German

Altenburg Rathaus, 18-6501
Cologne Rathaus, 8-3011
Heilbronn Rathaus, 18-6501
Potsdam, Sans Souci Palace, 11-4043, 4047

Irish

Belfast City Hall, 8-2934
Dublin Castle, 8-2929

Italian

Campaniles (Italian bell towers), 4-1466; 5-1746; 17-6296
Florence, Bridges in, 5-1744
Brunelleschi's Dome, 5-1746, 1747
Ghiberti's Gates for the Baptistry, 5-1741
Guadagni Palace, 17-6303
Medici Chapel, 17-6303
(interior), 5-1743
Pitti Palace, 8-3011; 17-6297
Riccardi Palace (court and gallery), 17-6308
San Paolo (loggia), 17-6296
San Spirito Church (interior), 17-6296
Santa Maria del Fiore Cathedral, 5-1746
(dome and tower), 5-1747
Strozzi Palace, 17-6306
Vecchio Palazzo, 5-1744
(courtyard), 5-1744
(tower), 5-1746
Milan, Maggiore Hospital (court), 17-6302
Santa Maria delle Grazie Church, 17-6302
Pavia, Church of the Certosa, 17-6303
(doorway), 17-6306
(interior), 17-6296
Perugia, Church of San Bernardino, 17-6303
Rome, Farnese Palace, 17-6304
(court), 17-6308
(doorway), 17-6306
Giraud-Torlonia Palace, 17-6302
Palace of the Conservatori, 17-6307
St. Peter's Church, 8-3011; 17-6305
(cupola from inside), 17-6306
(interior), 17-6308
Temple in the Church of St. Peter Mon-
torio, 17-6303
Vatican Palace, 17-6305
(hall), 17-6307
Villa Farnesina, 17-6306
Venice, Balbi Palace, 17-6296
Bridge of Sighs, 4-1468
Church of Santa Maria dei Miracoli, 17-6302
della Salute, 8-3011; 17-6301
Grimani Palace, 17-6307
Palaces in, 4-1465, 1467, 1468
on the Grand Canal, 17-6296, 6302, 6307
(doorway), 4-1468
Pisani Palace, 17-6307
Rialto Bridge, 17-6304
St. Mark's School, 13-4567
Spinelli Palace, 17-6302
Verona Town Hall, 17-6306
Vicenza, Basilica Palladiana, 17-6307

Polish

Cracow, Castle and Palace, 13-4689
Lemberg Cathedral, 13-4681

Renaissance (continued)

Portuguese

Braga, Church of the Good Jesus, 14-5191
Cintra, Castle of Peña, 14-5189
Lisbon, Praça do Commercio Arch, 14-5189
Mafra, Monastery of Franciscans, 14-5191

Spanish

Burgos, Santa Maria Gate, 14-5047
Madrid (near), The Escorial, palace and
monastery, 18-6499
Saragossa Cathedral, 14-5047
Seville Town Hall, 8-3011
Valladolid, San Pablo Church, 14-5045

Swedish

Stockholm, Royal Opera House, 15-5306

Renaissance—Modern

Austrian

Vienna, Hofburg Theatre, 17-6195
Museum, 17-6195
Opera House, 17-6195

Belgian

Brussels, Palace of Justice, 15-5495

Canadian

Quebec, P. Q., Château Frontenac, 4-1485
Ste. Anne de Beaupré, P. Q., Church at,
8-2956
Toronto, Ont., Government House, 5-1837
University of Toronto buildings, 15-5489
Winnipeg, Manitoba, Provincial Legislative
Building, 5-1837

English

London, British Museum, 12-4355
County Hall, 12-4359
St. Paul's Cathedral, 8-3011; 12-4357

French

Havre Town Hall, 10-3576

German

Berlin Cathedral, 12-4160, 4173
Reichstag Building, 12-4161
Heidelberg City Hall, 17-6265

Jugo-Slavian

Zagreb, National Theatre, 17-6347

Mexican

Mexico City, Governor's Palace, 19-7139

Polish

Warsaw, Philharmonic Hall, 13-4683
The Polytechnic, 13-4683

South American

Buenos Aires, Argentina, Retiro Railway
Station, 2-420
Lima, Peru, Cathedral, 19-6974
Montevideo, Uruguay, Cathedral, 19-6981
Central Railway Station, 19-6981
Legislative Palace, 19-6981
New Carrasco Hotel, 19-6981
Santiago, Chile, Art Museum, 19-7049
São Paulo, Brazil, Luz Railway Station,
2-420
Municipal Theatre, 19-7048
(interior), 19-7048

Swiss

Geneva, League of Nations Headquarters,
18-6457

Russian

Government of Tula, Château of Yasnaya
Polyana, 19-6904

United States

Academic buildings

Annapolis, Md., U. S. Naval Academy, Ban-
croft Hall, 18-6707, 6709
Chapel, 18-6707
Arizona, University of, Agricultural Build-
ing, 12-4314
Brown University, John Hay Library,
12-4312
California, University of, Outdoor theatre,
12-4317
Illinois, University of, Women's Building,
12-4307
New York University, Hall of Fame and Li-
brary, 17-6215
Wisconsin, University of, Bascom Hall,
12-4315
Baltimore, Md., War Memorial Hall, 11-3780
Boston, Mass., Christian Science Church
(Mother Church), new section, 14-5266
Public Library, 18-6687
Chicago, Ill., Municipal Stadium, 7-2312
Union Station, 19-7109
Cleveland, Ohio, Art Museum, 17-6043
Detroit, Mich., Public Library, 17-6042
"Greco Baptist" church, 18-6681

KEY TO ILLUSTRATIONS (ARCHITECTURE)

Renaissance—Modern, United States (continued)

- Hodgenville, Ky., Lincoln Memorial, **18-6838**
 Indianapolis, Ind., American Legion Building, **17-6045**
 Public Library, **18-6687**
 Jackson, Miss., State Capitol, **14-4898**
 Little Rock, Ark., State Capitol, **14-4897**
 Minneapolis, Minn., Art Museum, **17-6048**
 New York City, City Hall, **18-6683**
 Grant's Tomb, **3-1041**
 Metropolitan Museum of Art, **17-6215**
 Museum, Botanical Gardens, **17-6215**
 Pennsylvania Station, **2-419**
 Public Library, **17-6213**
 Stock Exchange, **17-6211**
 Oklahoma City, Okla., State Capitol, **14-4896**
 Plymouth, Mass., Canopy over Plymouth Rock, **2-542**
 St. Louis, Mo., Jefferson Memorial, **17-6047**
 San Francisco, Cal., City Hall, **19-6847**
 Springfield, Mass., Municipal Group, **11-3779**
 Public Library, **11-3779**
 Topeka, Kan., Masonic Temple, **17-6045**
 Valley Forge, Pa., Memorial arch at, **18-6835**
 Washington, D. C., Capitol, **5-1535, 1543**
 (for columns on porch), **5-1535**
 (interior), **5-1786, 1791**
 Library of Congress, **5-1537**
 (stairway), **5-1543**
 Lincoln Memorial, **5-1544; 11-3946**
 Memorial Continental Hall of the Daughters of the American Revolution, **4-1543**
 Pan-American Union Building, **5-1544**
 Scottish Rite Temple, **18-6687**
 State War and Navy Building, **5-1533**

Romanesque

Danish

Copenhagen, Round Tower, **15-5295**

English

Castle Rising, **8-3010**

French

Caen, St. Etienne Church, **8-3010**

Poitiers, St. Porchaire Church (tower), **16-5722**

Toulouse, Church of St. Sernin, **16-5724**

Vézelay, St. Madeleine (apse), **16-5715**

German

Bonn Cathedral, **12-4177**

Charlottenburg Church, **12-4176**

Düsseldorf Church, **12-4176**

Worms Cathedral, **8-3010; 16-5724**

Italian

Florence, the Baptistery, **5-1744**

Monreale, Capital of column at, **16-5723**

Palermo, Campanile, **13-4573**

Cathedral, **16-5723**

Church of La Martorana (interior), **16-5722**

St. Agostino Church (window), **16-5723**

Pavia, St. Michele, **8-3010**

Pisa Cathedral, **8-3010; 13-4575; 16-5721**

Leaning Tower, **13-4794; 16-5721**

Rome, St. Paul-outside-the-wall (interior), **16-5722**

Palestine

Tower of the Forty Martyrs, **18-6677**

Polish

Castle at Poznan, **13-4689**

Portuguese

Lisbon Cathedral (west front), **14-5189**

Swedish

Cathedral at Lund, **15-5305**

Romanesque—Modern

Canadian

Toronto, Ont., Parliament Building, **5-1836**

Romanesque—Modern (continued)

United States

Academic buildings

Cornell University, Library, **12-4311**

Stanford University (arcades), **12-4318**

(general view), **12-4318**

Memorial Chapel, **12-4318**

Albany, N. Y., State Capitol, **11-3779**

Boston, Mass., Christian Science Church

(Mother Church), old section, **14-5266**

Trinity Church, **18-6686**

Milwaukee, Wis., City Hall, **17-6045**

New York City, American Museum of Natural

History (exterior), **18-6613**

(interior), **18-6615**

Saxon

Bradford-on-Avon, Church at, **4-1437**

Earls Barton, Tower of church at, **4-1437**

United States

New York City, Hotel Ambassador, **17-6219**

Macy's Department Store, **10-3675**

Shelton Hotel, **18-6688**

Telephone Building, **17-6219**

Philadelphia, Pa., Elverson Building, **11-3776**

St. Louis, Mo., Southwestern Bell Telephone

Building, 8-frontis.

Skyscrapers

United States

Chicago, Ill., Tribune Building, **19-7116**

Wrigley Building, **19-7116**

Dallas, Tex., Magnolia Building, **14-4898**

Detroit, Mich., Book-Cadillac Hotel, **17-6042**

General Motors Building, **17-6042**

New York City, Financial district, **8-2673**

Flatiron Building, **9-3213**

Groups, up and down town, **17-6209**

Metropolitan Life Building, **17-6211**

Singer Building, **8-3011; 9-3213**

Woolworth Building, **4-1214; 18-6688**

Slavik

Polish

Czenstochowa Cathedral, **13-4681**

Poznan Town Hall, **13-4681**

Vilna, Castle of Mir, **13-4681**

Church at, **13-4681**

Warsaw, Palace of Sigismund III, **13-4687**

Spanish

Mexican—in the United States

Los Angeles, Cal., Belfry, ruined Pala Mis-

sion, **18-6427**

San Antonio, Tex., Alamo Chapel, San An-

tonio de Valero Mission, **18-6829**

San Diego, Cal., San Juan Capistrano Mis-

sion, **18-6829**

San Luis Rey Mission (bell tower), **18-6829**

Santa Barbara, Cal., Santa Barbara Mission,

6-1924

Santa Fé, N. Mex., Old Palace of Governors,

18-6427

Mexican

Mexico City, Cathedral, **19-7135**

Vera Cruz, Old prison, **19-7137**

South American

Cuzco, Peru, Doorway, Spanish Conquista-

dores, **19-6865**

Island of Taboga, Church on, **10-3595**

Lima, Peru, Passa Tagli Torc, **19-6983**

Spanish—Modern

Mexican—in the United States

Pasadena, Cal., House at, **18-6688**

Santa Barbara, Cal., Carmelite Convent,

18-6686

Tucson, Ariz., San Xavier del Boca Mission,

18-6427





